

61835-3.ST25.txt
SEQUENCE LISTING

<110> Vanaja, Donkena Krishna
Young, Charles Y.F.

<120> Methods And Compositions For Diagnosis, Staging and Prognosis of
Prostate Cancer

<130> 61835-3

<150> US 60/487,553

<151> 2003-07-14

<150> PCT/US2004/022850

<151> 2004-07-14

<160> 52

<170> PatentIn version 3.3

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<222> (41)..(1399)

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| Glu Glu Glu Glu Val Val Pro Phe Ser Ser Asp Glu Gln Lys Arg Arg | | |
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| Ser Glu Ala Ala Ser Gly Val Leu Arg Arg Thr Ala Pro Arg Glu His | | |
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| tcc tac gtc ctg tca gcg gcc aag aag agc act ggc agt cct acc cag | | 247 |
| Ser Tyr Val Leu Ser Ala Ala Lys Lys Ser Thr Gly Ser Pro Thr Gln | | |
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| gag aca cag gca ccg ttt atc gcg aag agg gtg gag gtg gtg gaa gag | | 295 |
| Glu Thr Gln Ala Pro Phe Ile Ala Lys Arg Val Glu Val Val Glu Glu | | |
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| gac ggg cct tct gag aag agc cag gac cca cct gct ctg gca aga tcc | | 343 |
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| | 90 95 100 | |

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| Gly Met Ser Ser Ser Ala Thr Ser Val Ser Ala Val Pro Ala Asp Arg | |
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| aag agc aac agc aca gca gcc cag gag gat gca aag gca gac cca aag | 535 |
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| Gly Ala Leu Ala Asp Cys Glu Gly Lys Asp Val Pro Thr Arg Val Gly | |
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| Gly Ser Ser Val Leu Thr Asp Phe Glu Gly Lys Asp Val Ala Thr Lys | |
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 Ile Val Arg Leu Gln Ile Leu Thr Pro Arg Ala Gly Leu Arg Leu Val
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 Val Pro Ala Asp Arg Lys Ser Asn Ser Thr Ala Ala Gln Glu Asp Ala
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 Lys Ala Asp Pro Lys Gly Ala Leu Ala Asp Cys Glu Gly Lys Asp Val
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 Pro Thr Arg Val Gly Glu Ala Trp Gln Glu Arg Pro Gly Ala Pro Arg
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 Gly Gly Gln Gly Asp Pro Ala Val Pro Ala Gln Gln Pro Ala Asp Pro
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 Ser Thr Pro Glu Arg Gln Ser Ser Pro Ser Gly Ser Glu Gln Leu Val
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 Arg Arg Glu Ser Cys Gly Ser Ser Val Leu Thr Asp Phe Glu Gly Lys
 225 230 235 240
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 Pro Arg Gly Gly Gln Gly Asp Pro Ala Val Pro Thr Gln Gln Pro Ala
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Asp Pro Ser Thr Pro Glu Gln Gln Asn Ser Pro Ser Gly Ser Glu Gln
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Cys Met Val Thr Val Thr Val Thr Ala Thr Ser Glu Gln Pro His Ile
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Tyr Ile Pro Ala Pro Ala Ser Glu Leu Asp Ser Ser Ser Thr Thr Lys
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Gly Ile Leu Phe Val Lys Glu Tyr Val Asn Ala Ser Glu Val Ser Ser
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Gly Lys Pro Val Ser Ala Arg Tyr Ser Asn Val Ser Ser Ile Glu Asp
355 360 365

Ser Phe Ala Met Glu Lys Lys Pro Pro Cys Gly Ser Thr Pro Tyr Ser
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Glu Arg Thr Thr Gly Gly Ile Cys Thr Tyr Cys Asn Arg Glu Ile Arg
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Asp Cys Pro Lys Ile Thr Leu Glu His Leu Gly Ile Cys Cys His Glu
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Tyr Cys Phe Lys Cys Gly Ile Cys Ser Lys Pro Met Gly Asp Leu Leu
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                                   1           5

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Val Val Ile Phe Ala Thr Phe Val Thr Leu Cys Asn Ala Ser Cys Tyr
      10           15           20

ttc ata cct aat gag gga gtt cca gga gat tca acc agg aaa tgc atg      149
Phe Ile Pro Asn Glu Gly Val Pro Gly Asp Ser Thr Arg Lys Cys Met
      25           30           35

gat ctc aaa gga aac aaa cac cca ata aac tcg gag tgg cag act gac      197
Asp Leu Lys Gly Asn Lys His Pro Ile Asn Ser Glu Trp Gln Thr Asp
      40           45           50           55

aac tgt gag aca tgc act tgc tac gaa aca gaa att tca tgt tgc acc      245
Asn Cys Glu Thr Cys Thr Cys Tyr Glu Thr Glu Ile Ser Cys Cys Thr
      60           65           70

ctt gtt tct aca cct gtg ggt tat gac aaa gac aac tgc caa aga atc      293
Leu Val Ser Thr Pro Val Gly Tyr Asp Lys Asp Asn Cys Gln Arg Ile
      75           80           85

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Phe Lys Lys Glu Asp Cys Lys Tyr Ile Val Val Glu Lys Lys Asp Pro
      90           95           100

aaa aag acc tgt tct gtc agt gaa tgg ata atc taa tgtgcttcta      387
Lys Lys Thr Cys Ser Val Ser Glu Trp Ile Ile
      105           110

gtaggcacag ggctcccagg ccaggcctca ttctcctctg gcctctaata gtcaatgatt      447

gtgtagccat gcctatcagt aaaaagattt ttgagcaaac acttgaatat gtgtgtcctt      507

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Asp Ser Thr Arg Lys Cys Met Asp Leu Lys Gly Asn Lys His Pro Ile
 35 40 45

Asn Ser Glu Trp Gln Thr Asp Asn Cys Glu Thr Cys Thr Cys Tyr Glu
 50 55 60

Thr Glu Ile Ser Cys Cys Thr Leu Val Ser Thr Pro Val Gly Tyr Asp
 65 70 75 80

Lys Asp Asn Cys Gln Arg Ile Phe Lys Lys Glu Asp Cys Lys Tyr Ile
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| gaattgagca acagtatcag aatgtcctga ctctttggca tgagtctcac ataaacatga | 1980 |
| agagtgtagt atcctggcat tatctcatca atgaaattga tagaattcga gctagcaatg | 2040 |
| tggcttcaat aaagacaatg ctacctggtg aacatcagca agttctaagt aatctacaat | 2100 |
| ctcgttttga agattttctg gaagatagcc aggaatccca agtcttttca ggctcagata | 2160 |

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| | | | | | | |
|------------|-------------|-------------|------------|-------------|------------|------|
| taacacaact | ggaaaaggag | gttaatgtat | gtaagcagta | ttatcaagaa | cttcttaa | 2220 |
| ctgcagaaa | agaggagcaa | gaggaatcag | tttataatct | ctacatctct | gaagtctgaa | 2280 |
| acattagact | tcggtttagag | aactgtgaag | atcggctgat | tagacagatt | cgaactcccc | 2340 |
| tggaaagaga | tgatttgcat | gaaagtgtgt | tcagaatcac | agaacaggag | aaactaaaga | 2400 |
| aagagctgga | acgacttaaa | gatgatttgg | gaacaatcac | aaataagtgt | gaggagtttt | 2460 |
| tcagtcaagc | agcagcctct | tcatcagtc | ctaccctacg | atcagagctt | aatgtggtcc | 2520 |
| ttcagaacat | gaaccaagtc | tattctatgt | cttcactta | catagataag | ttgaaaactg | 2580 |
| ttaacttggg | gttaaaaaac | actcaagctg | cagaagccct | cgtaaaactc | tatgaaacta | 2640 |
| aactgtgtga | agaagaagca | gttatagctg | acaagaataa | tattgagaat | ctaataagta | 2700 |
| ctttaagca | atggagatct | gaagtagatg | aaaagagaca | ggtattccat | gccttagagg | 2760 |
| atgagttgca | gaaagctaaa | gccatcagtg | atgaaatgtt | taaaacgtat | aaagaacggg | 2820 |
| accttgattt | tgactggcac | aaagaaaaag | cagatcaatt | agttgaaagg | tggcaaaatg | 2880 |
| ttcatgtgca | gattgacaac | aggttacggg | acttagaggg | cattggcaaa | tcactgaagt | 2940 |
| actacagaga | cacttaccat | ccttttagatg | attggatcca | gcaggttgaa | actactcaga | 3000 |
| gaaagattca | ggaaaatcag | cctgaaaata | gtaaaaccct | agccacacag | ttgaatcaac | 3060 |
| agaagatgct | ggtgtccgaa | atagaaatga | aacagagcaa | aatggacgag | tgtcaaaaat | 3120 |
| atgcagaaca | gtactcagct | acagtgaagg | actatgaatt | acaaacaatg | acctaccggg | 3180 |
| ccatggtaga | ttcacaacaa | aatctccag | tgaaacgccg | aagaatgcag | agttcagcag | 3240 |
| atctcattat | tcaagagttc | atggacctaa | ggactcgata | tactgccctg | gtcactctca | 3300 |
| tgacacaata | tattaaattt | gctggtgatt | cattgaagag | gctggaagag | gaggagatta | 3360 |
| aaaggtgtaa | ggagacttct | gaacatgggg | catattcaga | tctgcttcag | cgtcagaagg | 3420 |
| caacagtgt | tgagaatagc | aaacttacag | gaaagataag | tgagttggaa | agaatggtag | 3480 |
| ctgaactaaa | gaaacaaaag | tcccagagtag | aggaagaact | tccgaaggtc | agggaggctg | 3540 |
| cagaaaatga | attgagaaa | cagcagagaa | atgtagaaga | tatctctctg | cagaagataa | 3600 |
| gggctgaaag | tgaagccaag | cagtaccgca | gggaacttga | aaccattgtg | agagagaagg | 3660 |
| aagccgctga | aagagaactg | gagcgggtga | ggcagctcac | catagaggcc | gaggctaaaa | 3720 |
| gagctgccgt | ggaagagaac | ctcctgaatt | ttcgcaatca | gttgaggagaa | aacaccttta | 3780 |
| ccagacgaac | actggaagat | catcttaaaa | gaaaagattt | aagtctcaat | gatttggagc | 3840 |
| aacaaaaaaa | taaattaatg | gaagaattaa | gaagaaagag | agacaatgag | gaagaactct | 3900 |
| tgaagctgat | aaagcagatg | gaaaaagacc | ttgcatttca | gaaacaggta | gcagagaaac | 3960 |

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| | |
|---|------|
| agttgaaaga aaagcagaaa attgaattgg aagcaagaag aaaaataact gaaattcagt | 4020 |
| atacatgtag agaaaatgca ttgccagtgt gtccgatcac acaggctaca tcatgcaggg | 4080 |
| cagtaacggg tctccagcaa gaacatgaca agcagaaagc agaagaactc aaacagcagg | 4140 |
| tagatgaact aacagctgcc aatagaaagg ctgaacaaga catgagagag ctgacatatg | 4200 |
| aacttaatgc cctccagctt gaaaaaacgt catctgagga aaaggctcgt ttgctaaaag | 4260 |
| ataaactaga tgaaacaaat aatacactca gatgccttaa gttggagctg gaaaggaagg | 4320 |
| atcaggcgga gaaaggggat tctcaacaac tcagagagct tggtaggcaa ttgaatcaaa | 4380 |
| ccacaggtaa agctgaagaa gccatgcaag aagctagtga tctcaagaaa ataaagcgca | 4440 |
| attatcagtt agaattagaa tctcttaatc atgaaaaagg gaaactacaa agagaagtag | 4500 |
| acagaatcac aagggcacat gctgtagctg agaagaatat tcagcattta aattcacaaa | 4560 |
| ttcattcttt tcgagatgag aaagaattag aaagactaca aatctgccag agaaaatcag | 4620 |
| atcatctaaa agaacaattt gagaaaagcc atgagcagtt gcttcaaat atcaaagctg | 4680 |
| aaaaagaaaa taatgataaa atccaaaggc tcaatgaaga attggagaaa agtaatgagt | 4740 |
| gtgcagagat gctaaaacaa aaagtagagg agcttactag gcagaataat gaaaccaa | 4800 |
| taatgatgca gagaattcag gcagaatcag agaatatagt tttagagaaa caaactatcc | 4860 |
| agcaaagatg tgaagcactg aaaattcagg cagatggttt taaagatcag ctacgcagca | 4920 |
| caaatgaaca cttgcataaa cagacaaaaa cagagcagga ttttcaaaca aaaattaa | 4980 |
| gcctagaaga agacctggcg aaaagtcaaa atttggtgtaag tgaatttaag caaaagtgtg | 5040 |
| accaacagaa cattatcatc cagaatacca agaaagaagt tagaaatctg aatgcggaac | 5100 |
| tgaatgcttc caaagaagag aagcgacgcg gggagcagaa agttcagcta caacaagctc | 5160 |
| aggtgcaaga gttaaataac aggttgaaaa aagtacaaga cgaattacac ttaaagacca | 5220 |
| tagaggagca gatgaccac agaaagatgg ttctgtttca ggaagaatct ggtaaattca | 5280 |
| aacaatcagc agaggagttt cggaagaaga tggaaaaatt aatggagtcc aaagtcatca | 5340 |
| ctgaaaatga tatttcaggc attaggcttg actttgtgtc tcttcaaca gaaaactcta | 5400 |
| gagcccaaga aaatgctaag ctttgtgaaa caaacattaa agaacttgaa agacagcttc | 5460 |
| aacagtatcg tgaacaaatg cagcaagggc agcacatgga agcaaatac taccaaaaat | 5520 |
| gtcagaaact tgaggatgag ctgatagccc agaagcgtga ggttgaaaac ctgaagcaaa | 5580 |
| aaatggacca acagatcaaa gagcatgaac atcaattagt tttgctccag tgtgaaattc | 5640 |
| aaaaaaagag cacagccaaa gactgtacct tcaaaccaga ttttgagatg acagtgaagg | 5700 |

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| | | | | | | |
|-------------|-------------|-------------|------------|------------|-------------|------|
| agtgccagca | ctctggagag | ctgtcctcta | gaaacactgg | acaccttcac | ccaacaccca | 5760 |
| gatccccctct | gttgagatgg | actcaagaac | cacagccatt | ggaagagaag | tggcagcatc | 5820 |
| gggttggtga | acagataccc | aaagaagtcc | aattccagcc | accaggggct | ccactcgaga | 5880 |
| aagagaaaag | ccagcagtgt | tactctgagt | acttttctca | gacaagcacc | gagttacaga | 5940 |
| taacttttga | tgagacaaac | cccattacaa | gactgtctga | aattgagaag | ataagagacc | 6000 |
| aagccctgaa | caattctaga | ccacctgtta | ggtatcaaga | taacgcatgt | gaaatggaac | 6060 |
| tggtgaaggt | tttgacaccc | ttagagatag | ctaagaacaa | gcagtatgat | atgcatacag | 6120 |
| aagtcacaac | attaaaacaa | gaaaagaacc | cagttcccag | tgctgaagaa | tggtatgcttg | 6180 |
| aaggggtgcag | agcatctggt | ggactcaaga | aaggggattt | ccttaagaag | ggcttagaac | 6240 |
| cagagacctt | ccagaacttt | gatggtgatc | atgcatgttc | agtcagggat | gatgaattta | 6300 |
| aattccaagg | gcttaggcac | actgtgactg | ccaggcagtt | ggtggaagct | aagcttctgg | 6360 |
| acatgagaac | aattgagcag | ctgcgactcg | gtcttaagac | tggtgaagaa | gttcagaaaa | 6420 |
| ctcttaacaa | gtttctgacg | aaagccacct | caattgcagg | gctttaccta | gaatctacaa | 6480 |
| aagaaaagat | ttcatttgcc | tcagcggccg | agagaatcat | aatagacaaa | atggtggctt | 6540 |
| tggcattttt | agaagctcag | gctgcaacag | gttttataat | tgatcccatt | tcaggtcaga | 6600 |
| catattctgt | tgaagatgca | gttcttaaag | gagttgttga | ccccgaattc | agaattaggc | 6660 |
| ttcttgaggc | agagaaggca | gctgtgggat | attcttattc | ttctaagaca | ttgtcagtgt | 6720 |
| ttcaagctat | ggaaaataga | atgcttgaca | gacaaaaagg | taaacatatc | ttggaagccc | 6780 |
| agattgccag | tgggggtgtc | attgaccctg | tgagaggcat | tcgtgttcct | ccagaaattg | 6840 |
| ctctgcagca | gggggtgttg | aataatgcca | tcttacagtt | tttacatgag | ccatccagca | 6900 |
| acacaagagt | tttccctaatt | cccaataaca | agcaagctct | gtattactca | gaattactgc | 6960 |
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| aactttcagg | gcagcaatat | cagtggaagg | aagctatgtt | ttttgaatcc | tatgggcatt | 7200 |
| cttctcatat | gctgactgat | actaaaacag | gattacactt | caatattaat | gaggctatag | 7260 |
| agcagggaac | aattgacaaa | gccttggtca | aaaagtatca | ggaaggcctc | atcacactta | 7320 |
| cagaacttgc | tgattctttg | ctgagccggt | tagtccccaa | gaaagatttg | cacagtcctg | 7380 |
| ttgcagggta | ttggctgact | gctagtgggg | aaaggatctc | tgtactaaaa | gcctcccgta | 7440 |
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gcataattga tcctcttact gtcaaaaagt accgggtggc cgaagctttg catagaggcc 7560
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taagtgaatg aataaaatgt tttagtaacc tgtgtcggat tccgcggaat 8930

```

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<210> 32
<211> 5943
<212> DNA
<213> homo sapiens

```

```

<220>
<221> CDS
<222> (191)..(2641)

```

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<400> 32
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agttggcatc ctttgaaga gttcgtgaaa gctttctgcc cagagctcct ggaccaatgc      120

atcttccac caccttaaac cactgagcag ttcagagccc cagttgcaga cgacttgtcc      180

tgccaccacc atg agt tct gaa tgt gat ggt ggt tcc aaa gct gtg atg      229
      Met Ser Ser Glu Cys Asp Gly Gly Ser Lys Ala Val Met
            1             5             10

aat ggc ttg gca cct ggc agc aat ggg caa gac aaa gac atg gat cct      277
Asn Gly Leu Ala Pro Gly Ser Asn Gly Gln Asp Lys Asp Met Asp Pro
      15             20             25

aca aaa atc tgc act ggg aag gga gcg gtg act ctc cgg gcc tcg tct      325
Thr Lys Ile Cys Thr Gly Lys Gly Ala Val Thr Leu Arg Ala Ser Ser
      30             35             40             45

tcc tac agg gaa acc cca agc agt agc cct gcg agc cct cag gaa acc      373
Ser Tyr Arg Glu Thr Pro Ser Ser Ser Pro Ala Ser Pro Gln Glu Thr
            50             55             60

cgg caa cac gaa agc aaa cca ggt ctg gag cca gag cct tct tca gca      421
Arg Gln His Glu Ser Lys Pro Gly Leu Glu Pro Glu Pro Ser Ser Ala
            65             70             75

gat gag tgg agg ctt tct tcc agt gct gat gcc aat gga aat gcc cag      469
Asp Glu Trp Arg Leu Ser Ser Ser Ala Asp Ala Asn Gly Asn Ala Gln
            80             85             90

ccc tct tca ctc gct gcc aag ggc tac aga agt gtg cat ccc aac ctt      517
Pro Ser Ser Leu Ala Ala Lys Gly Tyr Arg Ser Val His Pro Asn Leu
            95             100             105

cct tct gac aag tcc cag gat gcc act tcc tcc agt gca gcc cag ccg      565
Pro Ser Asp Lys Ser Gln Asp Ala Thr Ser Ser Ser Ala Ala Gln Pro
      110             115             120             125

gag gta ata gtt gtc cct ctc tac ctg gtt aat act gac aga ggg caa      613
Glu Val Ile Val Val Pro Leu Tyr Leu Val Asn Thr Asp Arg Gly Gln
            130             135             140

gaa ggc act gcc aga cct cca aca cct ctg ggg cct ctt ggc tgc gtc      661
Glu Gly Thr Ala Arg Pro Pro Thr Pro Leu Gly Pro Leu Gly Cys Val
            145             150             155

ccc aca atc cca gcg act gcc tct gcc gcc tca cct ctg acc ttc ccg      709
Pro Thr Ile Pro Ala Thr Ala Ser Ala Ala Ser Pro Leu Thr Phe Pro
            160             165             170

act cta gat gat ttc att ccc cct cat ctg cag agg tgg ccc cac cac      757
Thr Leu Asp Asp Phe Ile Pro Pro His Leu Gln Arg Trp Pro His His
            175             180             185

agc cag cca gcc cgc gcc tct ggc tcc ttt gcc ccc att agc cag acg      805
Ser Gln Pro Ala Arg Ala Ser Gly Ser Phe Ala Pro Ile Ser Gln Thr
      190             195             200             205

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| | |
|---|------|
| cca cca tcc ttc tca cca cca cct ccg ctg gtc cct cct gcc ccg gag | 853 |
| Pro Pro Ser Phe Ser Pro Pro Pro Pro Leu Val Pro Pro Ala Pro Glu | |
| 210 215 220 | |
| gac ctg cgc aga gtc tcg gag cct gac ctg acg gga gct gtt tcg agt | 901 |
| Asp Leu Arg Arg Val Ser Glu Pro Asp Leu Thr Gly Ala Val Ser Ser | |
| 225 230 235 | |
| acc gat tcc agt cct cta cta aat gaa gtt tct tct tcc ctt att gga | 949 |
| Thr Asp Ser Ser Pro Leu Leu Asn Glu Val Ser Ser Ser Leu Ile Gly | |
| 240 245 250 | |
| act gat tcc caa gcc ttt cca tca gtt agc aag cct tca tcc gcc tat | 997 |
| Thr Asp Ser Ser Gln Ala Phe Pro Ser Val Ser Lys Pro Ser Ser Ala Tyr | |
| 255 260 265 | |
| ccc tcc aca acg att gtc aat cct act att gtg ctg ttg caa cac aat | 1045 |
| Pro Ser Thr Thr Ile Val Asn Pro Thr Ile Val Leu Leu Gln His Asn | |
| 270 275 280 285 | |
| cga gaa cag caa aaa cga ctg agt agc ctt tca gat cct gtc tca gaa | 1093 |
| Arg Glu Gln Gln Lys Arg Leu Ser Ser Leu Ser Asp Pro Val Ser Glu | |
| 290 295 300 | |
| aga aga gtg gga gag cag gac tca gca cca acc cag gaa aaa ccc acc | 1141 |
| Arg Arg Val Gly Glu Gln Asp Ser Ala Pro Thr Gln Glu Lys Pro Thr | |
| 305 310 315 | |
| tca cct ggc aag gct att gaa aaa aga gca aag gat gac agt agg cgg | 1189 |
| Ser Pro Gly Lys Ala Ile Glu Lys Arg Ala Lys Asp Asp Ser Arg Arg | |
| 320 325 330 | |
| gtg gtg aag agc act cag gac tta agc gat gtt tcc atg gat gaa gtg | 1237 |
| Val Val Lys Ser Thr Gln Asp Leu Ser Asp Val Ser Met Asp Glu Val | |
| 335 340 345 | |
| ggc atc cca ctg cgg aac act gag aga tca aaa gac tgg tac aag act | 1285 |
| Gly Ile Pro Leu Arg Asn Thr Glu Arg Ser Lys Asp Trp Tyr Lys Thr | |
| 350 355 360 365 | |
| atg ttt aaa cag atc cac aaa ctg aac aga gat gat gat tca gat ctg | 1333 |
| Met Phe Lys Gln Ile His Lys Leu Asn Arg Asp Asp Asp Ser Asp Leu | |
| 370 375 380 | |
| tac tct ccc aga tac tca ttt tct gaa gac aca aaa tct ccc ctt tct | 1381 |
| Tyr Ser Pro Arg Tyr Ser Phe Ser Glu Asp Thr Lys Ser Pro Leu Ser | |
| 385 390 395 | |
| gtg cct cgc tca aaa agt gag atg agc tac att gat ggt gag aag gta | 1429 |
| Val Pro Arg Ser Lys Ser Glu Met Ser Tyr Ile Asp Gly Glu Lys Val | |
| 400 405 410 | |
| gtc aag agg tcg gcc aca cta ccc ctg cca gcc cgc tct tcc tca ctg | 1477 |
| Val Lys Arg Ser Ala Thr Leu Pro Leu Pro Ala Arg Ser Ser Ser Leu | |
| 415 420 425 | |
| aag tca agc tca gaa aga aat gac tgg gaa ccc cca gat aag aaa gta | 1525 |
| Lys Ser Ser Ser Glu Arg Asn Asp Trp Glu Pro Pro Asp Lys Lys Val | |

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| 430 | 435 | 440 | 445 | |
|---|-----|-----|-----|------|
| gat aca aga aaa tat cgt gca gag ccc aag agc att tac gaa tat cag | | | | 1573 |
| Asp Thr Arg Lys Tyr Arg Ala Glu Pro Lys Ser Ile Tyr Glu Tyr Gln | 450 | 455 | 460 | |
| cct ggc aag tct tcc gtt ctg acc aac gaa aag atg agc tca gcc atc | | | | 1621 |
| Pro Gly Lys Ser Ser Val Leu Thr Asn Glu Lys Met Ser Ser Ala Ile | 465 | 470 | 475 | |
| agc cct act ccg gaa att tct tca gag act cct gga tat ata tat tct | | | | 1669 |
| Ser Pro Thr Pro Glu Ile Ser Ser Glu Thr Pro Gly Tyr Ile Tyr Ser | 480 | 485 | 490 | |
| tcc aac ttc cat gca gtg aag agg gaa tca gac ggg gct cct ggg gat | | | | 1717 |
| Ser Asn Phe His Ala Val Lys Arg Glu Ser Asp Gly Ala Pro Gly Asp | 495 | 500 | 505 | |
| ctc act agc ttg gag aat gag aga caa att tat aaa agt gtc ttg gaa | | | | 1765 |
| Leu Thr Ser Leu Glu Asn Glu Arg Gln Ile Tyr Lys Ser Val Leu Glu | 510 | 515 | 520 | 525 |
| ggg ggt gac atc cct ctt cag ggc ctg agt ggg ctc aag cga cca tcc | | | | 1813 |
| Gly Gly Asp Ile Pro Leu Gln Gly Leu Ser Gly Leu Lys Arg Pro Ser | 530 | 535 | 540 | |
| agc tct gct tcc act aaa gat tca gaa tcg cca aga cat ttt ata cca | | | | 1861 |
| Ser Ser Ala Ser Thr Lys Asp Ser Glu Ser Pro Arg His Phe Ile Pro | 545 | 550 | 555 | |
| gct gat tac ttg gaa tcc acg gaa gaa ttt att cga aga cgt cat gat | | | | 1909 |
| Ala Asp Tyr Leu Glu Ser Thr Glu Glu Phe Ile Arg Arg Arg His Asp | 560 | 565 | 570 | |
| gat aaa gag atg aga cct gcc aga gcc aaa ttt gac ttt aaa gct cag | | | | 1957 |
| Asp Lys Glu Met Arg Pro Ala Arg Ala Lys Phe Asp Phe Lys Ala Gln | 575 | 580 | 585 | |
| aca cta aag gag ctt cct ctg cag aag gga gat att gtt tac att tat | | | | 2005 |
| Thr Leu Lys Glu Leu Pro Leu Gln Lys Gly Asp Ile Val Tyr Ile Tyr | 590 | 595 | 600 | 605 |
| aag caa att gat cag aac tgg tat gaa gga gaa cac cac ggc cgg gtg | | | | 2053 |
| Lys Gln Ile Asp Gln Asn Trp Tyr Glu Gly Glu His His Gly Arg Val | 610 | 615 | 620 | |
| gga atc ttc cca cgc acc tac atc gag ctt ctt cct cct gct gag aag | | | | 2101 |
| Gly Ile Phe Pro Arg Thr Tyr Ile Glu Leu Leu Pro Pro Ala Glu Lys | 625 | 630 | 635 | |
| gca cag ccc aaa aag ttg aca cca gtg cag gtt ttg gaa tat gga gaa | | | | 2149 |
| Ala Gln Pro Lys Lys Leu Thr Pro Val Gln Val Leu Glu Tyr Gly Glu | 640 | 645 | 650 | |
| gct att gct aag ttt aac ttt aat ggt gat aca caa gta gaa atg tcc | | | | 2197 |
| Ala Ile Ala Lys Phe Asn Phe Asn Gly Asp Thr Gln Val Glu Met Ser | 655 | 660 | 665 | |
| ttc aga aag ggt gag agg atc aca ctg ctc cgg cag gta gat gag aac | | | | 2245 |

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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|------|
| Phe | Arg | Lys | Gly | Glu | Arg | Ile | Thr | Leu | Leu | Arg | Gln | Val | Asp | Glu | Asn | | |
| 670 | | | | | 675 | | | | 680 | | | | | | 685 | | |
| tg | g | t | a | c | a | a | c | c | a | c | a | a | c | a | c | c | |
| Trp | Tyr | Glu | Gly | Arg | Ile | Pro | Gly | Thr | Ser | Arg | Gln | Gly | Ile | Phe | Pro | | 2293 |
| | | | | 690 | | | | | 695 | | | | | 700 | | | |
| a | t | c | a | c | a | c | a | c | a | c | a | a | a | a | c | c | |
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| Asp | Tyr | Met | Asp | Leu | Pro | Phe | Ser | Ser | Ser | Pro | Ser | Arg | Ser | Ala | Thr | | 2389 |
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| Ala | Ser | Pro | Gln | Gln | Pro | Gln | Ala | Gln | Gln | Arg | Arg | Val | Thr | Pro | Asp | | 2437 |
| | 735 | | | | | 740 | | | | 745 | | | | | | | |
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| Arg | Ser | Gln | Thr | Ser | Gln | Asp | Leu | Phe | Ser | Tyr | Gln | Ala | Leu | Tyr | Ser | | 2485 |
| 750 | | | | | 755 | | | | 760 | | | | | 765 | | | |
| t | a | t | a | c | a | a | c | a | a | c | a | a | c | a | a | c | |
| Tyr | Ile | Pro | Gln | Asn | Asp | Asp | Glu | Leu | Glu | Leu | Arg | Asp | Gly | Asp | Ile | | 2533 |
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| a | g | a | a | c | a | a | c | a | a | c | a | a | c | a | a | c | |
| Arg | Arg | Thr | Lys | Gln | Phe | Gly | Thr | Phe | Pro | Gly | Asn | Tyr | Val | Lys | Pro | | 2629 |
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| Leu | Tyr | Leu | | | | | | | | | | | | | | | 2681 |
| | | 815 | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | 2981 |
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| | | | | | | | | | | | | | | | | | 3101 |
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| | | | | | | | | | | | | | | | | | 3161 |
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| | | | | | | | | | | | | | | | | | 3221 |
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61835-3.ST25.txt

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Glu Thr Pro Ser Ser Ser Pro Ala Ser Pro Gln Glu Thr Arg Gln His
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Glu Ser Lys Pro Gly Leu Glu Pro Glu Pro Ser Ser Ala Asp Glu Trp
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Val Val Pro Leu Tyr Leu Val Asn Thr Asp Arg Gly Gln Glu Gly Thr
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Phe Ser Pro Pro Pro Pro Leu Val Pro Pro Ala Pro Glu Asp Leu Arg
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Ser Pro Leu Leu Asn Glu Val Ser Ser Ser Leu Ile Gly Thr Asp Ser
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Gln Ala Phe Pro Ser Val Ser Lys Pro Ser Ser Ala Tyr Pro Ser Thr
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Thr Ile Val Asn Pro Thr Ile Val Leu Leu Gln His Asn Arg Glu Gln
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61835-3.ST25.txt

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Ser Glu Arg Asn Asp Trp Glu Pro Pro Asp Lys Lys Val Asp Thr Arg
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Ser Thr Lys Asp Ser Glu Ser Pro Arg His Phe Ile Pro Ala Asp Tyr
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Lys Lys Leu Thr Pro Val Gln Val Leu Glu Tyr Gly Glu Ala Ile Ala
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Gly Glu Arg Ile Thr Leu Leu Arg Gln Val Asp Glu Asn Trp Tyr Glu
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Gly Arg Ile Pro Gly Thr Ser Arg Gln Gly Ile Phe Pro Ile Thr Tyr
690 695 700

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Asp Leu Pro Phe Ser Ser Ser Pro Ser Arg Ser Ala Thr Ala Ser Pro
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Gln Gln Pro Gln Ala Gln Gln Arg Arg Val Thr Pro Asp Arg Ser Gln
740 745 750

Thr Ser Gln Asp Leu Phe Ser Tyr Gln Ala Leu Tyr Ser Tyr Ile Pro
755 760 765

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790

795

800

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                                   1           5
aga att gcc agg cgc ctg gaa ggg att gaa aat gac act cag ccc atc      163
Arg Ile Ala Arg Arg Leu Glu Gly Ile Glu Asn Asp Thr Gln Pro Ile
               10               15               20
ctc ttg cag agc tgc aca gga ttg gtg act cac cgc ctg ctg gag gaa      211
Leu Leu Gln Ser Cys Thr Gly Leu Val Thr His Arg Leu Leu Glu Glu
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| Gly Arg Ser Asn Glu Glu Glu Glu Thr Ser Asp Ser Ser Leu Glu Lys | |
| 55 60 65 | |
| caa act cga tcc aaa tac tgc aca gaa acc tcc ggt gtc cac ggt gac | 355 |
| Gln Thr Arg Ser Lys Tyr Cys Thr Glu Thr Ser Gly Val His Gly Asp | |
| 70 75 80 85 | |
| tca ccc tat ggt tgc ggt acc atg gac acc cac agt ctg gag tcc aaa | 403 |
| Ser Pro Tyr Gly Ser Gly Thr Met Asp Thr His Ser Leu Glu Ser Lys | |
| 90 95 100 | |
| gcc gaa aga att gca agg tac aaa gca gaa aga agg cga cag ctg gca | 451 |
| Ala Glu Arg Ile Ala Arg Tyr Lys Ala Glu Arg Arg Arg Gln Leu Ala | |
| 105 110 115 | |
| gag aag tat ggg ctg act ctg gat ccc gag gcc gac tcc gag tat tta | 499 |
| Glu Lys Tyr Gly Leu Thr Leu Asp Pro Glu Ala Asp Ser Glu Tyr Leu | |
| 120 125 130 | |
| tcc cgc tat acc aag tcc agg aag gag cct gat gct gtc gag aag cgg | 547 |
| Ser Arg Tyr Thr Lys Ser Arg Lys Glu Pro Asp Ala Val Glu Lys Arg | |
| 135 140 145 | |
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| ctg tac ccc ggg acc gag acg atg ggg ctc agg acc tgt gcc ggt gaa | 643 |
| Leu Tyr Pro Gly Thr Glu Thr Met Gly Leu Arg Thr Cys Ala Gly Glu | |
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| tcc aag gac tat gcc ctc cat gtg ggt gac ggc tct tcc gac ccg gag | 691 |
| Ser Lys Asp Tyr Ala Leu His Val Gly Asp Gly Ser Ser Asp Pro Glu | |
| 185 190 195 | |
| gtg ctg ctg aac ata gaa aac caa aga cga ggt caa gag ctg agt gcc | 739 |
| Val Leu Leu Asn Ile Glu Asn Gln Arg Arg Gly Gln Glu Leu Ser Ala | |
| 200 205 210 | |
| acc cgg cag gcc cat gac ctg tcc cca gca gcc gag agt tcc tcg acc | 787 |
| Thr Arg Gln Ala His Asp Leu Ser Pro Ala Ala Glu Ser Ser Ser Thr | |
| 215 220 225 | |
| ttc tct ttc tct ggg cga gac tcc tcc ttc act gaa gtg cca cgg tcc | 835 |
| Phe Ser Phe Ser Gly Arg Asp Ser Ser Phe Thr Glu Val Pro Arg Ser | |
| 230 235 240 245 | |
| ccc aag cac gcc cac agc tcc tcc ctg cag cag gca gcc tcc cgg agc | 883 |
| Pro Lys His Ala His Ser Ser Ser Leu Gln Gln Ala Ala Ser Arg Ser | |
| 250 255 260 | |
| ccc tcc ttt ggt gac cca cag cta tcc cct gag gcc cga ccc agg tgc | 931 |
| Pro Ser Phe Gly Asp Pro Gln Leu Ser Pro Glu Ala Arg Pro Arg Cys | |
| 265 270 275 | |

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| 280 285 290 | |
| gaa cga gcc aag ctg agc gtc gcc gcc aag agg ttg ctt ttc agg gag | 1027 |
| Glu Arg Ala Lys Leu Ser Val Ala Ala Lys Arg Leu Leu Phe Arg Glu | |
| 295 300 305 | |
| atg gaa aaa tct ttt gat gaa caa aat gtt cca aag cga cgc tca aga | 1075 |
| Met Glu Lys Ser Phe Asp Glu Gln Asn Val Pro Lys Arg Arg Ser Arg | |
| 310 315 320 325 | |
| aac aca gct gtg gag cag agg cta cgc cgt ctg cag gac agg tcc ctc | 1123 |
| Asn Thr Ala Val Glu Gln Arg Leu Arg Arg Leu Gln Asp Arg Ser Leu | |
| 330 335 340 | |
| acc cag ccc atc acc act gaa gag gtg gtc atc gca gcc aca ttg cag | 1171 |
| Thr Gln Pro Ile Thr Thr Glu Glu Val Val Ile Ala Ala Thr Leu Gln | |
| 345 350 355 | |
| gcc tct gct cac caa aag gcc tta gcc aag gac cag aca aat gag ggc | 1219 |
| Ala Ser Ala His Gln Lys Ala Leu Ala Lys Asp Gln Thr Asn Glu Gly | |
| 360 365 370 | |
| aaa gag ctt gct gag caa gga gaa cct gat tcc tcc act cta agc ttg | 1267 |
| Lys Glu Leu Ala Glu Gln Gly Glu Pro Asp Ser Ser Thr Leu Ser Leu | |
| 375 380 385 | |
| gcc gaa aag ttg gcc ttg ttt aac aaa ttg tcc cag cca gtc tca aaa | 1315 |
| Ala Glu Lys Leu Ala Leu Phe Asn Lys Leu Ser Gln Pro Val Ser Lys | |
| 390 395 400 405 | |
| gcg att tct acc cgg aac aga ata gac acg aga cag agg aga atg aac | 1363 |
| Ala Ile Ser Thr Arg Asn Arg Ile Asp Thr Arg Gln Arg Arg Met Asn | |
| 410 415 420 | |
| gct cgc tat caa act cag cca gtc aca ctg gga gag gtg gag cag gtg | 1411 |
| Ala Arg Tyr Gln Thr Gln Pro Val Thr Leu Gly Glu Val Glu Gln Val | |
| 425 430 435 | |
| cag agt gga aag ctc att cct ttc tca cct gcc gtg aac aca tca gtg | 1459 |
| Gln Ser Gly Lys Leu Ile Pro Phe Ser Pro Ala Val Asn Thr Ser Val | |
| 440 445 450 | |
| tct acc gta gca tcc acg gtt gct cca atg tat gcc gga gat ctt cgc | 1507 |
| Ser Thr Val Ala Ser Thr Val Ala Pro Met Tyr Ala Gly Asp Leu Arg | |
| 455 460 465 | |
| aca aag cca cct ctt gac cac aat gca agt gcc act gac tat aag ttt | 1555 |
| Thr Lys Pro Pro Leu Asp His Asn Ala Ser Ala Thr Asp Tyr Lys Phe | |
| 470 475 480 485 | |
| tct tct tca ata gaa aat tcg gac tct cca gtt aga agc att ctg aaa | 1603 |
| Ser Ser Ser Ile Glu Asn Ser Asp Ser Pro Val Arg Ser Ile Leu Lys | |
| 490 495 500 | |
| tcg caa gct tgg cag cct ttg gta gag ggt agc gag aac aag gga atg | 1651 |
| Ser Gln Ala Trp Gln Pro Leu Val Glu Gly Ser Glu Asn Lys Gly Met | |

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| Leu | Arg | Glu | Tyr | Gly | Glu | Thr | Glu | Ser | Lys | Arg | Ala | Leu | Thr | Gly | Arg | |
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| gac | agt | ggg | atg | gag | aag | tat | ggg | tcc | ttt | gag | gaa | gca | gaa | gca | tcc | 1747 |
| Asp | Ser | Gly | Met | Glu | Lys | Tyr | Gly | Ser | Phe | Glu | Glu | Ala | Glu | Ala | Ser | |
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| tac | ccc | atc | ctg | aac | cga | gcc | agg | gaa | gga | gac | agc | cat | aag | gaa | tct | 1795 |
| Tyr | Pro | Ile | Leu | Asn | Arg | Ala | Arg | Glu | Gly | Asp | Ser | His | Lys | Glu | Ser | |
| 550 | | | | 555 | | | | | | 560 | | | | | 565 | |
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| Lys | Tyr | Ala | Val | Pro | Arg | Arg | Gly | Ser | Leu | Glu | Arg | Ala | Asn | Pro | Pro | |
| | | | | 570 | | | | | 575 | | | | | 580 | | |
| atc | acc | cac | ctc | ggg | gat | gaa | ccg | aag | gaa | ttt | tcc | atg | gct | aaa | atg | 1891 |
| Ile | Thr | His | Leu | Gly | Asp | Glu | Pro | Lys | Glu | Phe | Ser | Met | Ala | Lys | Met | |
| | | | 585 | | | | | 590 | | | | | 595 | | | |
| aat | gca | caa | gga | aac | ttg | gac | ttg | agg | gac | agg | ctg | ccc | ttt | gaa | gag | 1939 |
| Asn | Ala | Gln | Gly | Asn | Leu | Asp | Leu | Arg | Asp | Arg | Leu | Pro | Phe | Glu | Glu | |
| | | 600 | | | | | 605 | | | | | 610 | | | | |
| aag | gtg | gag | gtg | gag | aat | gtt | atg | aaa | agg | aag | ttt | tca | cta | aga | gcg | 1987 |
| Lys | Val | Glu | Val | Glu | Asn | Val | Met | Lys | Arg | Lys | Phe | Ser | Leu | Arg | Ala | |
| | 615 | | | | | 620 | | | | | 625 | | | | | |
| gca | gag | ttc | ggg | gag | ccc | act | tcc | gag | cag | acg | ggg | aca | gct | gct | ggg | 2035 |
| Ala | Glu | Phe | Gly | Glu | Pro | Thr | Ser | Glu | Gln | Thr | Gly | Thr | Ala | Ala | Gly | |
| 630 | | | | | 635 | | | | | 640 | | | | | 645 | |
| aaa | act | att | gct | caa | acc | aca | gcc | ccc | gtg | tcc | tgg | aag | ccc | cag | gat | 2083 |
| Lys | Thr | Ile | Ala | Gln | Thr | Thr | Ala | Pro | Val | Ser | Trp | Lys | Pro | Gln | Asp | |
| | | | | 650 | | | | | 655 | | | | | 660 | | |
| tct | tcg | gaa | cag | cca | cag | gag | aag | ctc | tgc | aag | aat | cca | tgt | gcg | atg | 2131 |
| Ser | Ser | Glu | Gln | Pro | Gln | Glu | Lys | Leu | Cys | Lys | Asn | Pro | Cys | Ala | Met | |
| | | | 665 | | | | | 670 | | | | | 675 | | | |
| ttt | gct | gct | gga | gag | atc | aaa | acg | ccg | aca | ggg | gag | ggc | ctt | ctt | gac | 2179 |
| Phe | Ala | Ala | Gly | Glu | Ile | Lys | Thr | Pro | Thr | Gly | Glu | Gly | Leu | Leu | Asp | |
| | | 680 | | | | | 685 | | | | | 690 | | | | |
| tca | ccc | agc | aaa | acc | atg | tct | att | aaa | gaa | aga | ttg | gca | ctg | ttg | aag | 2227 |
| Ser | Pro | Ser | Lys | Thr | Met | Ser | Ile | Lys | Glu | Arg | Leu | Ala | Leu | Leu | Lys | |
| | 695 | | | | | 700 | | | | | 705 | | | | | |
| aaa | agc | ggg | gag | gaa | gat | tgg | aga | aac | aga | ctc | agc | agg | agg | cag | gag | 2275 |
| Lys | Ser | Gly | Glu | Glu | Asp | Trp | Arg | Asn | Arg | Leu | Ser | Arg | Arg | Gln | Glu | |
| 710 | | | | | 715 | | | | | 720 | | | | | 725 | |
| ggc | ggc | aag | gcg | ccg | gcc | agc | agc | ctg | cac | acc | cag | gaa | gca | ggg | cgg | 2323 |
| Gly | Gly | Lys | Ala | Pro | Ala | Ser | Ser | Leu | His | Thr | Gln | Glu | Ala | Gly | Arg | |
| | | | | 730 | | | | | 735 | | | | | 740 | | |
| tcc | ctc | atc | aag | aag | cgg | gtc | aca | gaa | agt | cga | gag | agc | caa | atg | acg | 2371 |

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| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Ser | Leu | Ile | Lys | Lys | Arg | Val | Thr | Glu | Ser | Arg | Glu | Ser | Gln | Met | Thr | |
| | | | 745 | | | | | 750 | | | | | 755 | | | |
| att | gag | gag | agg | aag | cag | ctc | atc | act | gtg | aga | gag | gag | gcc | tg | aag | 2419 |
| Ile | Glu | Glu | Arg | Lys | Gln | Leu | Ile | Thr | Val | Arg | Glu | Glu | Ala | Trp | Lys | |
| | | 760 | | | | | 765 | | | | | 770 | | | | |
| acg | aga | ggc | aga | gga | gcg | gcc | aac | gac | tcg | acc | cag | ttc | act | gtg | gct | 2467 |
| Thr | Arg | Gly | Arg | Gly | Ala | Ala | Asn | Asp | Ser | Thr | Gln | Phe | Thr | Val | Ala | |
| | 775 | | | | | 780 | | | | | 785 | | | | | |
| ggc | agg | atg | gtg | aag | aaa | ggg | ttg | gcg | tca | cct | act | gcc | ata | acc | cca | 2515 |
| Gly | Arg | Met | Val | Lys | Lys | Gly | Leu | Ala | Ser | Pro | Thr | Ala | Ile | Thr | Pro | |
| 790 | | | | | 795 | | | | | 800 | | | | | 805 | |
| gta | gcc | tca | gcc | att | tgc | ggg | aaa | aca | aga | ggc | acc | aca | ccc | gtt | tcc | 2563 |
| Val | Ala | Ser | Ala | Ile | Cys | Gly | Lys | Thr | Arg | Gly | Thr | Thr | Pro | Val | Ser | |
| | | | | 810 | | | | | 815 | | | | | 820 | | |
| aaa | ccc | ctg | gaa | gat | atc | gaa | gcc | aga | cca | gat | atg | cag | tta | gaa | tcg | 2611 |
| Lys | Pro | Leu | Glu | Asp | Ile | Glu | Ala | Arg | Pro | Asp | Met | Gln | Leu | Glu | Ser | |
| | | | 825 | | | | | 830 | | | | | 835 | | | |
| gac | ctg | aag | ttg | gac | agg | ctg | gaa | acc | ttt | cta | aga | agg | ctg | aat | aac | 2659 |
| Asp | Leu | Lys | Leu | Asp | Arg | Leu | Glu | Thr | Phe | Leu | Arg | Arg | Leu | Asn | Asn | |
| | | 840 | | | | | 845 | | | | | 850 | | | | |
| aaa | gtt | ggc | ggg | atg | cac | gaa | acg | gtg | ctc | act | gtc | acc | ggc | aaa | tct | 2707 |
| Lys | Val | Gly | Gly | Met | His | Glu | Thr | Val | Leu | Thr | Val | Thr | Gly | Lys | Ser | |
| | 855 | | | | | 860 | | | | | 865 | | | | | |
| gtg | aag | gag | gtg | atg | aag | cca | gat | gat | gat | gaa | acc | ttt | gcc | aaa | ttt | 2755 |
| Val | Lys | Glu | Val | Met | Lys | Pro | Asp | Asp | Asp | Glu | Thr | Phe | Ala | Lys | Phe | |
| 870 | | | | | 875 | | | | | 880 | | | | | 885 | |
| tac | cgc | agc | gtg | gat | tat | aat | atg | cca | aga | agt | cct | gtg | gag | atg | gat | 2803 |
| Tyr | Arg | Ser | Val | Asp | Tyr | Asn | Met | Pro | Arg | Ser | Pro | Val | Glu | Met | Asp | |
| | | | | 890 | | | | | 895 | | | | | 900 | | |
| gag | gac | ttc | gat | gtc | att | ttc | gat | cct | tat | gca | ccc | aaa | ttg | acg | tct | 2851 |
| Glu | Asp | Phe | Asp | Val | Ile | Phe | Asp | Pro | Tyr | Ala | Pro | Lys | Leu | Thr | Ser | |
| | | 905 | | | | | | 910 | | | | | 915 | | | |
| tcc | gtg | gcc | gag | cac | aag | cgg | gca | gtt | agg | ccc | aag | cgc | cgg | gtt | cag | 2899 |
| Ser | Val | Ala | Glu | His | Lys | Arg | Ala | Val | Arg | Pro | Lys | Arg | Arg | Val | Gln | |
| | | 920 | | | | | 925 | | | | | 930 | | | | |
| gcc | tcc | aaa | aac | ccc | ctg | aaa | atg | ctg | gcg | gca | aga | gaa | gat | ctc | ctt | 2947 |
| Ala | Ser | Lys | Asn | Pro | Leu | Lys | Met | Leu | Ala | Ala | Arg | Glu | Asp | Leu | Leu | |
| | 935 | | | | | 940 | | | | | 945 | | | | | |
| cag | gaa | tac | act | gag | cag | aga | tta | aac | gtt | gcc | ttc | atg | gag | tca | aag | 2995 |
| Gln | Glu | Tyr | Thr | Glu | Gln | Arg | Leu | Asn | Val | Ala | Phe | Met | Glu | Ser | Lys | |
| 950 | | | | | 955 | | | | | 960 | | | | | 965 | |
| cgg | atg | aaa | gta | gaa | aag | atg | tct | tcc | aac | tcc | aac | ttc | tca | gaa | gtc | 3043 |
| Arg | Met | Lys | Val | Glu | Lys | Met | Ser | Ser | Asn | Ser | Asn | Phe | Ser | Glu | Val | |
| | | | | 970 | | | | | 975 | | | | | 980 | | |

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| | |
|---|------|
| acc ctg gcg ggt tta gcc agt aaa gaa aac ttc agc aac gtc agc ctg | 3091 |
| Thr Leu Ala Gly Leu Ala Ser Lys Glu Asn Phe Ser Asn Val Ser Leu | |
| 985 990 995 | |
| cgg agc gtc aac ctg acg gaa cag aac tct aac aac agc gcc gtg | 3136 |
| Arg Ser Val Asn Leu Thr Glu Gln Asn Ser Asn Asn Ser Ala Val | |
| 1000 1005 1010 | |
| ccc tac aag agg ctg atg ctg ttg cag att aaa gga aga aga cat | 3181 |
| Pro Tyr Lys Arg Leu Met Leu Leu Gln Ile Lys Gly Arg Arg His | |
| 1015 1020 1025 | |
| gtg cag acc agg ctg gtg gaa cct cga gct tcg gcg ctc aac agt | 3226 |
| Val Gln Thr Arg Leu Val Glu Pro Arg Ala Ser Ala Leu Asn Ser | |
| 1030 1035 1040 | |
| ggg gac tgc ttc ctc ctg ctc tct ccc cac tgc tgc ttc ctg tgg | 3271 |
| Gly Asp Cys Phe Leu Leu Leu Ser Pro His Cys Cys Phe Leu Trp | |
| 1045 1050 1055 | |
| gta gga gag ttt gca aac gtc ata gaa aag gcg aag gcc tca gaa | 3316 |
| Val Gly Glu Phe Ala Asn Val Ile Glu Lys Ala Lys Ala Ser Glu | |
| 1060 1065 1070 | |
| ctt gca act tta att cag aca aag agg gaa ctt ggt tgt aga gct | 3361 |
| Leu Ala Thr Leu Ile Gln Thr Lys Arg Glu Leu Gly Cys Arg Ala | |
| 1075 1080 1085 | |
| act tat atc caa acc att gaa gaa gga att aat aca cac act cat | 3406 |
| Thr Tyr Ile Gln Thr Ile Glu Glu Gly Ile Asn Thr His Thr His | |
| 1090 1095 1100 | |
| gca gcc aaa gac ttc tgg aag ctt ctg ggt ggc caa acc agt tac | 3451 |
| Ala Ala Lys Asp Phe Trp Lys Leu Leu Gly Gly Gln Thr Ser Tyr | |
| 1105 1110 1115 | |
| caa tct gct gga gac cca aaa gaa gat gaa ctc tat gaa gca gcc | 3496 |
| Gln Ser Ala Gly Asp Pro Lys Glu Asp Glu Leu Tyr Glu Ala Ala | |
| 1120 1125 1130 | |
| ata ata gaa act aac tgc att tac cgt ctc atg gat gac aaa ctt | 3541 |
| Ile Ile Glu Thr Asn Cys Ile Tyr Arg Leu Met Asp Asp Lys Leu | |
| 1135 1140 1145 | |
| gtt cct gat gac gac tac tgg ggg aaa att ccg aag tgc tcc ctt | 3586 |
| Val Pro Asp Asp Asp Tyr Trp Gly Lys Ile Pro Lys Cys Ser Leu | |
| 1150 1155 1160 | |
| ctg caa ccc aaa gag gta ctg gtg ttt gat ttt ggt agt gaa gtt | 3631 |
| Leu Gln Pro Lys Glu Val Leu Val Phe Asp Phe Gly Ser Glu Val | |
| 1165 1170 1175 | |
| tac gta tgg cat ggg aaa gaa gtc aca tta gca caa cga aaa ata | 3676 |
| Tyr Val Trp His Gly Lys Glu Val Thr Leu Ala Gln Arg Lys Ile | |
| 1180 1185 1190 | |
| gca ttt cag ctg gca aag cac tta tgg aat gga acc ttt gac tat | 3721 |
| Ala Phe Gln Leu Ala Lys His Leu Trp Asn Gly Thr Phe Asp Tyr | |
| 1195 1200 1205 | |

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| | | | | |
|-------------|---------------------|---------------------|-------------|------|
| gag aac tgt | gac atc aat ccc ctg | gat cct gga gaa tgc | aat ccg | 3766 |
| Glu Asn Cys | Asp Ile Asn Pro Leu | Asp Pro Gly Glu Cys | Asn Pro | |
| 1210 | 1215 | 1220 | | |
| ctt atc ccc | aga aaa gga cag ggg | cgg ccc gac tgg gcg | ata ttt | 3811 |
| Leu Ile Pro | Arg Lys Gly Gln Gly | Arg Pro Asp Trp Ala | Ile Phe | |
| 1225 | 1230 | 1235 | | |
| ggg aga ctt | act gaa cac aat gag | acg att ttg ttc | aaa gag aag | 3856 |
| Gly Arg Leu | Thr Glu His Asn Glu | Thr Ile Leu Phe Lys | Glu Lys | |
| 1240 | 1245 | 1250 | | |
| ttt ctg gat | tgg acg gaa ctg aag | aga tcg aat gag aag | aac ccc | 3901 |
| Phe Leu Asp | Trp Thr Glu Leu Lys | Arg Ser Asn Glu Lys | Asn Pro | |
| 1255 | 1260 | 1265 | | |
| ggg gaa ctt | gcc cag cac aag gaa | gac ccc agg act gat | gtc aag | 3946 |
| Gly Glu Leu | Ala Gln His Lys Glu | Asp Pro Arg Thr Asp | Val Lys | |
| 1270 | 1275 | 1280 | | |
| gca tac gat | gtg aca cgg atg gtg | tcc atg ccc cag acg | aca gca | 3991 |
| Ala Tyr Asp | Val Thr Arg Met Val | Ser Met Pro Gln Thr | Thr Ala | |
| 1285 | 1290 | 1295 | | |
| ggc acc atc | ctg gac gga gtg aac | gtc ggc cgt ggc tat | ggc ctg | 4036 |
| Gly Thr Ile | Leu Asp Gly Val Asn | Val Gly Arg Gly Tyr | Gly Leu | |
| 1300 | 1305 | 1310 | | |
| gtg gaa gga | cac gac agg agg cag | ttt gag atc acc agc | gtt tcc | 4081 |
| Val Glu Gly | His Asp Arg Arg Gln | Phe Glu Ile Thr Ser | Val Ser | |
| 1315 | 1320 | 1325 | | |
| gtg gat gtc | tgg cac atc ctg gaa | ttc gac tat agc agg | ctc ccc | 4126 |
| Val Asp Val | Trp His Ile Leu Glu | Phe Asp Tyr Ser Arg | Leu Pro | |
| 1330 | 1335 | 1340 | | |
| aaa caa agc | atc ggg cag ttc cat | gag ggg gat gcc tat | gtg gtc | 4171 |
| Lys Gln Ser | Ile Gly Gln Phe His | Glu Gly Asp Ala Tyr | Val Val | |
| 1345 | 1350 | 1355 | | |
| aag tgg aag | ttc atg gtg agc acg | gca gtg gga agt cgc | cag aag | 4216 |
| Lys Trp Lys | Phe Met Val Ser Thr | Ala Val Gly Ser Arg | Gln Lys | |
| 1360 | 1365 | 1370 | | |
| gga gag cac | tcg gtg agg gca gcc | ggc aaa gag aag tgc | gtc tac | 4261 |
| Gly Glu His | Ser Val Arg Ala Ala | Gly Lys Glu Lys Cys | Val Tyr | |
| 1375 | 1380 | 1385 | | |
| ttc ttc tgg | caa ggc cgg cac tcc | acc gtg agt gag aag | ggc acg | 4306 |
| Phe Phe Trp | Gln Gly Arg His Ser | Thr Val Ser Glu Lys | Gly Thr | |
| 1390 | 1395 | 1400 | | |
| tcg gcg ctg | atg acg gtg gag ctg | gac gag gaa agg ggg | gcc cag | 4351 |
| Ser Ala Leu | Met Thr Val Glu Leu | Asp Glu Glu Arg Gly | Ala Gln | |
| 1405 | 1410 | 1415 | | |
| gtc cag gtt | ctc cag gga aag gag | ccc ccc tgt ttc ctg | cag tgt | 4396 |
| Val Gln Val | Leu Gln Gly Lys Glu | Pro Pro Cys Phe Leu | Gln Cys | |

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| 1420 | 1425 | 1430 | |
|---------------------------------|-----------------------------|------|--|
| ttc cag ggg ggg atg gtg gtg cac | tcg ggg agg cgg gaa gag gaa | 4441 | |
| Phe Gln Gly Gly Met Val Val His | Ser Gly Arg Arg Glu Glu Glu | | |
| 1435 | 1440 1445 | | |
| gaa gaa aat gtg caa agt gag tgg | cgg ctg tac tgc gtg cgt gga | 4486 | |
| Glu Glu Asn Val Gln Ser Glu Trp | Arg Leu Tyr Cys Val Arg Gly | | |
| 1450 | 1455 1460 | | |
| gag gtg ccc gtg gaa ggg aat ttg | ctg gaa gtg gcc tgt cac tgt | 4531 | |
| Glu Val Pro Val Glu Gly Asn Leu | Leu Glu Val Ala Cys His Cys | | |
| 1465 | 1470 1475 | | |
| agc agc ctg agg tcc aga act tcc | atg gtg gtg ctt aac gtc aac | 4576 | |
| Ser Ser Leu Arg Ser Arg Thr Ser | Met Val Val Leu Asn Val Asn | | |
| 1480 | 1485 1490 | | |
| aag gcc ctg atc tac ctg tgg cac | gga tgc aaa gcc cag gcc cac | 4621 | |
| Lys Ala Leu Ile Tyr Leu Trp His | Gly Cys Lys Ala Gln Ala His | | |
| 1495 | 1500 1505 | | |
| acg aag gag gtc gga agg acc gct | gcg aac aag atc aag gaa caa | 4666 | |
| Thr Lys Glu Val Gly Arg Thr Ala | Ala Asn Lys Ile Lys Glu Gln | | |
| 1510 | 1515 1520 | | |
| tgt ccc ctg gaa gca gga ctg cat | agt agc agc aaa gtc aca ata | 4711 | |
| Cys Pro Leu Glu Ala Gly Leu His | Ser Ser Ser Lys Val Thr Ile | | |
| 1525 | 1530 1535 | | |
| cac gag tgt gat gaa ggc tcc gag | cca ctg gga ttc tgg gat gcc | 4756 | |
| His Glu Cys Asp Glu Gly Ser Glu | Pro Leu Gly Phe Trp Asp Ala | | |
| 1540 | 1545 1550 | | |
| tta gga agg aga gac agg aaa gcc | tac gat tgc atg ctt caa gat | 4801 | |
| Leu Gly Arg Arg Asp Arg Lys Ala | Tyr Asp Cys Met Leu Gln Asp | | |
| 1555 | 1560 1565 | | |
| cct gga agt ttt aac ttc gcg ccc | cgc ctg ttc atc ctg agc agc | 4846 | |
| Pro Gly Ser Phe Asn Phe Ala Pro | Arg Leu Phe Ile Leu Ser Ser | | |
| 1570 | 1575 1580 | | |
| tcc tct ggg gat ttt gca gcc aca | gag ttt gtg tac cct gcc cga | 4891 | |
| Ser Ser Gly Asp Phe Ala Ala Thr | Glu Phe Val Tyr Pro Ala Arg | | |
| 1585 | 1590 1595 | | |
| gcc ccc tct gtg gtc agt tcc atg | ccc ttc ctg cag gaa gat ctg | 4936 | |
| Ala Pro Ser Val Val Ser Ser Met | Pro Phe Leu Gln Glu Asp Leu | | |
| 1600 | 1605 1610 | | |
| tac agc gcg ccc cag cca gca ctt | ttc ctt gtt gac aat cac cac | 4981 | |
| Tyr Ser Ala Pro Gln Pro Ala Leu | Phe Leu Val Asp Asn His His | | |
| 1615 | 1620 1625 | | |
| gag gtg tac ctg tgg caa ggc tgg | tgg ccc atc gag aac aag atc | 5026 | |
| Glu Val Tyr Leu Trp Gln Gly Trp | Trp Pro Ile Glu Asn Lys Ile | | |
| 1630 | 1635 1640 | | |
| act ggt tcc gcc cgc atc cgc tgg | gcc tcc gac cgg aag agt gcg | 5071 | |

[illegible]

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Asp Thr Gln Pro Ile Leu Leu Gln Ser Cys Thr Gly Leu Val Thr His
 20 25 30

Arg Leu Leu Glu Glu Asp Thr Pro Arg Tyr Met Arg Ala Ser Asp Pro
 35 40 45

Ala Ser Pro His Ile Gly Arg Ser Asn Glu Glu Glu Glu Thr Ser Asp
 50 55 60

Ser Ser Leu Glu Lys Gln Thr Arg Ser Lys Tyr Cys Thr Glu Thr Ser
 65 70 75 80

Gly Val His Gly Asp Ser Pro Tyr Gly Ser Gly Thr Met Asp Thr His
 85 90 95

Ser Leu Glu Ser Lys Ala Glu Arg Ile Ala Arg Tyr Lys Ala Glu Arg
 100 105 110

Arg Arg Gln Leu Ala Glu Lys Tyr Gly Leu Thr Leu Asp Pro Glu Ala
 115 120 125

Asp Ser Glu Tyr Leu Ser Arg Tyr Thr Lys Ser Arg Lys Glu Pro Asp
 130 135 140

Ala Val Glu Lys Arg Gly Gly Lys Ser Asp Lys Gln Glu Glu Ser Ser
 145 150 155 160

Arg Asp Ala Ser Ser Leu Tyr Pro Gly Thr Glu Thr Met Gly Leu Arg
 165 170 175

Thr Cys Ala Gly Glu Ser Lys Asp Tyr Ala Leu His Val Gly Asp Gly
 180 185 190

Ser Ser Asp Pro Glu Val Leu Leu Asn Ile Glu Asn Gln Arg Arg Gly
 195 200 205

Gln Glu Leu Ser Ala Thr Arg Gln Ala His Asp Leu Ser Pro Ala Ala
 210 215 220

Glu Ser Ser Ser Thr Phe Ser Phe Ser Gly Arg Asp Ser Ser Phe Thr
 225 230 235 240

Glu Val Pro Arg Ser Pro Lys His Ala His Ser Ser Ser Leu Gln Gln
 245 250 255

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Ala Ala Ser Arg Ser Pro Ser Phe Gly Asp Pro Gln Leu Ser Pro Glu
 260 265 270

Ala Arg Pro Arg Cys Thr Ser His Ser Glu Thr Pro Thr Val Asp Asp
 275 280 285

Glu Glu Lys Val Asp Glu Arg Ala Lys Leu Ser Val Ala Ala Lys Arg
 290 295 300

Leu Leu Phe Arg Glu Met Glu Lys Ser Phe Asp Glu Gln Asn Val Pro
 305 310 315 320

Lys Arg Arg Ser Arg Asn Thr Ala Val Glu Gln Arg Leu Arg Arg Leu
 325 330 335

Gln Asp Arg Ser Leu Thr Gln Pro Ile Thr Thr Glu Glu Val Val Ile
 340 345 350

Ala Ala Thr Leu Gln Ala Ser Ala His Gln Lys Ala Leu Ala Lys Asp
 355 360 365

Gln Thr Asn Glu Gly Lys Glu Leu Ala Glu Gln Gly Glu Pro Asp Ser
 370 375 380

Ser Thr Leu Ser Leu Ala Glu Lys Leu Ala Leu Phe Asn Lys Leu Ser
 385 390 395 400

Gln Pro Val Ser Lys Ala Ile Ser Thr Arg Asn Arg Ile Asp Thr Arg
 405 410 415

Gln Arg Arg Met Asn Ala Arg Tyr Gln Thr Gln Pro Val Thr Leu Gly
 420 425 430

Glu Val Glu Gln Val Gln Ser Gly Lys Leu Ile Pro Phe Ser Pro Ala
 435 440 445

Val Asn Thr Ser Val Ser Thr Val Ala Ser Thr Val Ala Pro Met Tyr
 450 455 460

Ala Gly Asp Leu Arg Thr Lys Pro Pro Leu Asp His Asn Ala Ser Ala
 465 470 475 480

Thr Asp Tyr Lys Phe Ser Ser Ser Ile Glu Asn Ser Asp Ser Pro Val
 485 490 495

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Arg Ser Ile Leu Lys Ser Gln Ala Trp Gln Pro Leu Val Glu Gly Ser
500 505 510

Glu Asn Lys Gly Met Leu Arg Glu Tyr Gly Glu Thr Glu Ser Lys Arg
515 520 525

Ala Leu Thr Gly Arg Asp Ser Gly Met Glu Lys Tyr Gly Ser Phe Glu
530 535 540

Glu Ala Glu Ala Ser Tyr Pro Ile Leu Asn Arg Ala Arg Glu Gly Asp
545 550 555 560

Ser His Lys Glu Ser Lys Tyr Ala Val Pro Arg Arg Gly Ser Leu Glu
565 570 575

Arg Ala Asn Pro Pro Ile Thr His Leu Gly Asp Glu Pro Lys Glu Phe
580 585 590

Ser Met Ala Lys Met Asn Ala Gln Gly Asn Leu Asp Leu Arg Asp Arg
595 600 605

Leu Pro Phe Glu Glu Lys Val Glu Val Glu Asn Val Met Lys Arg Lys
610 615 620

Phe Ser Leu Arg Ala Ala Glu Phe Gly Glu Pro Thr Ser Glu Gln Thr
625 630 635 640

Gly Thr Ala Ala Gly Lys Thr Ile Ala Gln Thr Thr Ala Pro Val Ser
645 650 655

Trp Lys Pro Gln Asp Ser Ser Glu Gln Pro Gln Glu Lys Leu Cys Lys
660 665 670

Asn Pro Cys Ala Met Phe Ala Ala Gly Glu Ile Lys Thr Pro Thr Gly
675 680 685

Glu Gly Leu Leu Asp Ser Pro Ser Lys Thr Met Ser Ile Lys Glu Arg
690 695 700

Leu Ala Leu Leu Lys Lys Ser Gly Glu Glu Asp Trp Arg Asn Arg Leu
705 710 715 720

Ser Arg Arg Gln Glu Gly Gly Lys Ala Pro Ala Ser Ser Leu His Thr

725

730

735

Gln Glu Ala Gly Arg Ser Leu Ile Lys Lys Arg Val Thr Glu Ser Arg
 740 745 750

Glu Ser Gln Met Thr Ile Glu Glu Arg Lys Gln Leu Ile Thr Val Arg
 755 760 765

Glu Glu Ala Trp Lys Thr Arg Gly Arg Gly Ala Ala Asn Asp Ser Thr
 770 775 780

Gln Phe Thr Val Ala Gly Arg Met Val Lys Lys Gly Leu Ala Ser Pro
 785 790 795 800

Thr Ala Ile Thr Pro Val Ala Ser Ala Ile Cys Gly Lys Thr Arg Gly
 805 810 815

Thr Thr Pro Val Ser Lys Pro Leu Glu Asp Ile Glu Ala Arg Pro Asp
 820 825 830

Met Gln Leu Glu Ser Asp Leu Lys Leu Asp Arg Leu Glu Thr Phe Leu
 835 840 845

Arg Arg Leu Asn Asn Lys Val Gly Gly Met His Glu Thr Val Leu Thr
 850 855 860

Val Thr Gly Lys Ser Val Lys Glu Val Met Lys Pro Asp Asp Asp Glu
 865 870 875 880

Thr Phe Ala Lys Phe Tyr Arg Ser Val Asp Tyr Asn Met Pro Arg Ser
 885 890 895

Pro Val Glu Met Asp Glu Asp Phe Asp Val Ile Phe Asp Pro Tyr Ala
 900 905 910

Pro Lys Leu Thr Ser Ser Val Ala Glu His Lys Arg Ala Val Arg Pro
 915 920 925

Lys Arg Arg Val Gln Ala Ser Lys Asn Pro Leu Lys Met Leu Ala Ala
 930 935 940

Arg Glu Asp Leu Leu Gln Glu Tyr Thr Glu Gln Arg Leu Asn Val Ala
 945 950 955 960

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Phe Met Glu Ser Lys Arg Met Lys Val Glu Lys Met Ser Ser Asn Ser
 965 970 975

Asn Phe Ser Glu Val Thr Leu Ala Gly Leu Ala Ser Lys Glu Asn Phe
 980 985 990

Ser Asn Val Ser Leu Arg Ser Val Asn Leu Thr Glu Gln Asn Ser Asn
 995 1000 1005

Asn Ser Ala Val Pro Tyr Lys Arg Leu Met Leu Leu Gln Ile Lys
 1010 1015 1020

Gly Arg Arg His Val Gln Thr Arg Leu Val Glu Pro Arg Ala Ser
 1025 1030 1035

Ala Leu Asn Ser Gly Asp Cys Phe Leu Leu Leu Ser Pro His Cys
 1040 1045 1050

Cys Phe Leu Trp Val Gly Glu Phe Ala Asn Val Ile Glu Lys Ala
 1055 1060 1065

Lys Ala Ser Glu Leu Ala Thr Leu Ile Gln Thr Lys Arg Glu Leu
 1070 1075 1080

Gly Cys Arg Ala Thr Tyr Ile Gln Thr Ile Glu Glu Gly Ile Asn
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Thr His Thr His Ala Ala Lys Asp Phe Trp Lys Leu Leu Gly Gly
 1100 1105 1110

Gln Thr Ser Tyr Gln Ser Ala Gly Asp Pro Lys Glu Asp Glu Leu
 1115 1120 1125

Tyr Glu Ala Ala Ile Ile Glu Thr Asn Cys Ile Tyr Arg Leu Met
 1130 1135 1140

Asp Asp Lys Leu Val Pro Asp Asp Asp Tyr Trp Gly Lys Ile Pro
 1145 1150 1155

Lys Cys Ser Leu Leu Gln Pro Lys Glu Val Leu Val Phe Asp Phe
 1160 1165 1170

Gly Ser Glu Val Tyr Val Trp His Gly Lys Glu Val Thr Leu Ala
 1175 1180 1185

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| | | | | | | | | | | | | | | |
|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|
| Gln | Arg | Lys | Ile | Ala | Phe | Gln | Leu | Ala | Lys | His | Leu | Trp | Asn | Gly |
| 1190 | | | | | | 1195 | | | | | 1200 | | | |
| Thr | Phe | Asp | Tyr | Glu | Asn | Cys | Asp | Ile | Asn | Pro | Leu | Asp | Pro | Gly |
| 1205 | | | | | | 1210 | | | | | 1215 | | | |
| Glu | Cys | Asn | Pro | Leu | Ile | Pro | Arg | Lys | Gly | Gln | Gly | Arg | Pro | Asp |
| 1220 | | | | | | 1225 | | | | | 1230 | | | |
| Trp | Ala | Ile | Phe | Gly | Arg | Leu | Thr | Glu | His | Asn | Glu | Thr | Ile | Leu |
| 1235 | | | | | | 1240 | | | | | 1245 | | | |
| Phe | Lys | Glu | Lys | Phe | Leu | Asp | Trp | Thr | Glu | Leu | Lys | Arg | Ser | Asn |
| 1250 | | | | | | 1255 | | | | | 1260 | | | |
| Glu | Lys | Asn | Pro | Gly | Glu | Leu | Ala | Gln | His | Lys | Glu | Asp | Pro | Arg |
| 1265 | | | | | | 1270 | | | | | 1275 | | | |
| Thr | Asp | Val | Lys | Ala | Tyr | Asp | Val | Thr | Arg | Met | Val | Ser | Met | Pro |
| 1280 | | | | | | 1285 | | | | | 1290 | | | |
| Gln | Thr | Thr | Ala | Gly | Thr | Ile | Leu | Asp | Gly | Val | Asn | Val | Gly | Arg |
| 1295 | | | | | | 1300 | | | | | 1305 | | | |
| Gly | Tyr | Gly | Leu | Val | Glu | Gly | His | Asp | Arg | Arg | Gln | Phe | Glu | Ile |
| 1310 | | | | | | 1315 | | | | | 1320 | | | |
| Thr | Ser | Val | Ser | Val | Asp | Val | Trp | His | Ile | Leu | Glu | Phe | Asp | Tyr |
| 1325 | | | | | | 1330 | | | | | 1335 | | | |
| Ser | Arg | Leu | Pro | Lys | Gln | Ser | Ile | Gly | Gln | Phe | His | Glu | Gly | Asp |
| 1340 | | | | | | 1345 | | | | | 1350 | | | |
| Ala | Tyr | Val | Val | Lys | Trp | Lys | Phe | Met | Val | Ser | Thr | Ala | Val | Gly |
| 1355 | | | | | | 1360 | | | | | 1365 | | | |
| Ser | Arg | Gln | Lys | Gly | Glu | His | Ser | Val | Arg | Ala | Ala | Gly | Lys | Glu |
| 1370 | | | | | | 1375 | | | | | 1380 | | | |
| Lys | Cys | Val | Tyr | Phe | Phe | Trp | Gln | Gly | Arg | His | Ser | Thr | Val | Ser |
| 1385 | | | | | | 1390 | | | | | 1395 | | | |
| Glu | Lys | Gly | Thr | Ser | Ala | Leu | Met | Thr | Val | Glu | Leu | Asp | Glu | Glu |
| 1400 | | | | | | 1405 | | | | | 1410 | | | |

| | | | | | | | | | | | | | | |
|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|
| Arg | Gly | Ala | Gln | Val | Gln | Val | Leu | Gln | Gly | Lys | Glu | Pro | Pro | Cys |
| 1415 | | | | | | 1420 | | | | | 1425 | | | |
| | | | | | | | | | | | | | | |
| Phe | Leu | Gln | Cys | Phe | Gln | Gly | Gly | Met | Val | Val | His | Ser | Gly | Arg |
| 1430 | | | | | | 1435 | | | | | 1440 | | | |
| | | | | | | | | | | | | | | |
| Arg | Glu | Glu | Glu | Glu | Glu | Asn | Val | Gln | Ser | Glu | Trp | Arg | Leu | Tyr |
| 1445 | | | | | | 1450 | | | | | 1455 | | | |
| | | | | | | | | | | | | | | |
| Cys | Val | Arg | Gly | Glu | Val | Pro | Val | Glu | Gly | Asn | Leu | Leu | Glu | Val |
| 1460 | | | | | | 1465 | | | | | 1470 | | | |
| | | | | | | | | | | | | | | |
| Ala | Cys | His | Cys | Ser | Ser | Leu | Arg | Ser | Arg | Thr | Ser | Met | Val | Val |
| 1475 | | | | | | 1480 | | | | | 1485 | | | |
| | | | | | | | | | | | | | | |
| Leu | Asn | Val | Asn | Lys | Ala | Leu | Ile | Tyr | Leu | Trp | His | Gly | Cys | Lys |
| 1490 | | | | | | 1495 | | | | | 1500 | | | |
| | | | | | | | | | | | | | | |
| Ala | Gln | Ala | His | Thr | Lys | Glu | Val | Gly | Arg | Thr | Ala | Ala | Asn | Lys |
| 1505 | | | | | | 1510 | | | | | 1515 | | | |
| | | | | | | | | | | | | | | |
| Ile | Lys | Glu | Gln | Cys | Pro | Leu | Glu | Ala | Gly | Leu | His | Ser | Ser | Ser |
| 1520 | | | | | | 1525 | | | | | 1530 | | | |
| | | | | | | | | | | | | | | |
| Lys | Val | Thr | Ile | His | Glu | Cys | Asp | Glu | Gly | Ser | Glu | Pro | Leu | Gly |
| 1535 | | | | | | 1540 | | | | | 1545 | | | |
| | | | | | | | | | | | | | | |
| Phe | Trp | Asp | Ala | Leu | Gly | Arg | Arg | Asp | Arg | Lys | Ala | Tyr | Asp | Cys |
| 1550 | | | | | | 1555 | | | | | 1560 | | | |
| | | | | | | | | | | | | | | |
| Met | Leu | Gln | Asp | Pro | Gly | Ser | Phe | Asn | Phe | Ala | Pro | Arg | Leu | Phe |
| 1565 | | | | | | 1570 | | | | | 1575 | | | |
| | | | | | | | | | | | | | | |
| Ile | Leu | Ser | Ser | Ser | Ser | Gly | Asp | Phe | Ala | Ala | Thr | Glu | Phe | Val |
| 1580 | | | | | | 1585 | | | | | 1590 | | | |
| | | | | | | | | | | | | | | |
| Tyr | Pro | Ala | Arg | Ala | Pro | Ser | Val | Val | Ser | Ser | Met | Pro | Phe | Leu |
| 1595 | | | | | | 1600 | | | | | 1605 | | | |
| | | | | | | | | | | | | | | |
| Gln | Glu | Asp | Leu | Tyr | Ser | Ala | Pro | Gln | Pro | Ala | Leu | Phe | Leu | Val |
| 1610 | | | | | | 1615 | | | | | 1620 | | | |
| | | | | | | | | | | | | | | |
| Asp | Asn | His | His | Glu | Val | Tyr | Leu | Trp | Gln | Gly | Trp | Trp | Pro | Ile |

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1625

1630

1635

Glu Asn Lys Ile Thr Gly Ser Ala Arg Ile Arg Trp Ala Ser Asp
 1640 1645 1650

Arg Lys Ser Ala Met Glu Thr Val Leu Gln Tyr Cys Lys Gly Lys
 1655 1660 1665

Asn Leu Lys Lys Pro Ala Pro Lys Ser Tyr Leu Ile His Ala Gly
 1670 1675 1680

Leu Glu Pro Leu Thr Phe Thr Asn Met Phe Pro Ser Trp Glu His
 1685 1690 1695

Arg Glu Asp Ile Ala Glu Ile Thr Glu Met Asp Thr Glu Val Ser
 1700 1705 1710

Asn Gln Ile Thr Leu Val Glu Asp Val Leu Ala Lys Leu Cys Lys
 1715 1720 1725

Thr Ile Tyr Pro Leu Ala Asp Leu Leu Ala Arg Pro Leu Pro Glu
 1730 1735 1740

Gly Val Asp Pro Leu Lys Leu Glu Ile Tyr Leu Thr Asp Glu Asp
 1745 1750 1755

Phe Glu Phe Ala Leu Asp Met Thr Arg Asp Glu Tyr Asn Ala Leu
 1760 1765 1770

Pro Ala Trp Lys Gln Val Asn Leu Lys Lys Ala Lys Gly Leu Phe
 1775 1780 1785

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 <213> homo sapiens

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 <223> n is a, c, g, or t

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 gtggcatatg gacaccccca gtgctgccgg tctcgcttcc ggtacaaaag tctcagcagg 120

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```

aaaccaacct taatggcttg ttgatggata agacggcatc aacttgtaca ttgcccatt 180
gagagaactc ccaggagcaa ctgtcctctc tccagtacac gcggcacgtt gctaagaagg 240
cagatttcag gatattcaca ttcattgcatt acgtatctca cactacctgg gcagtttaac 300
tcatactttg tacagatgca gagagtacag tagttgtatt tatatatata tatatgtaga 360
gatctcttta aatatatata gctatatata atatatatgt ttatatgttt acacctatta 420
gtctttcttc caaaacttcc tttagaagct tcttaggaac acctgaaacc tctgggagat 480
cctatgatct gagttccaaa gttnggtca actgtgagac ggctggaaaa gatctatttg 540
agaaaatgag aagggaagtg catttcattc ttgacctcag ggctcggact agcctgagga 600
tcgg 604

```

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<210> 38
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```

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<220>
<221> CDS
<222> (130) .. (633)

```

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ctgcctgcac cttggacaga gcgggtgcgc aaatcagaag gattagttgg gacctgcctt 120

ggcgacccc atg gca tcc ccc aga acc gta act att gtg gcc ctc tca gtg 171
      Met Ala Ser Pro Arg Thr Val Thr Ile Val Ala Leu Ser Val
      1             5             10

gcc ctg gga ctc ttc ttt gtt ttc atg ggg act atc aag ctg acc ccc 219
Ala Leu Gly Leu Phe Val Phe Met Gly Thr Ile Lys Leu Thr Pro
15             20             25             30

agg ctc agc aag gat gcc tac agt gag atg aaa cgt gct tac aag agc 267
Arg Leu Ser Lys Asp Ala Tyr Ser Glu Met Lys Arg Ala Tyr Lys Ser
35             40             45

tat gtt cga gcc ctc cct ctg ctg aag aaa atg ggg atc aat tcc att 315
Tyr Val Arg Ala Leu Pro Leu Leu Lys Lys Met Gly Ile Asn Ser Ile
50             55             60

ctc ctc cga aaa agc att ggt gcc ctt gaa gtg gcc tgt ggc atc gtc 363
Leu Leu Arg Lys Ser Ile Gly Ala Leu Glu Val Ala Cys Gly Ile Val
65             70             75

atg acc ctt gtg cct ggg cgt ccc aaa gat gtg gcc aac ttc ttc cta 411
Met Thr Leu Val Pro Gly Arg Pro Lys Asp Val Ala Asn Phe Phe Leu
80             85             90

ctg ttg ctg gtg ttg gct gtg ctc ttc ttc cac cag ctg gtc ggt gat 459

```

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| | | | | | | | | | | | | | | | | |
|------------|------------|-------------|------------|------------|------------|-----|-----|-----|-----|------------|------------|-----|-----|-----|-----|------|
| Leu | Leu | Leu | Val | Leu | Ala | Val | Leu | Phe | Phe | His | Gln | Leu | Val | Gly | Asp | |
| 95 | | | | | 100 | | | | | 105 | | | | | 110 | |
| cct | ctc | aaa | cgc | tac | gcc | cat | gct | ctg | gtg | ttt | gga | atc | ctg | ctc | act | 507 |
| Pro | Leu | Lys | Arg | Tyr | Ala | His | Ala | Leu | Val | Phe | Gly | Ile | Leu | Leu | Thr | |
| | | | | 115 | | | | | 120 | | | | | 125 | | |
| tgc | cgc | ctg | ctg | att | gct | cgc | aag | ccc | gaa | gac | cgg | tct | tct | gag | aag | 555 |
| Cys | Arg | Leu | Leu | Ile | Ala | Arg | Lys | Pro | Glu | Asp | Arg | Ser | Ser | Glu | Lys | |
| | | | 130 | | | | | 135 | | | | | 140 | | | |
| aag | cct | ttg | cca | ggg | aat | gct | gag | gag | caa | ccc | tcc | tta | tat | gag | aag | 603 |
| Lys | Pro | Leu | Pro | Gly | Asn | Ala | Glu | Glu | Gln | Pro | Ser | Leu | Tyr | Glu | Lys | |
| | | 145 | | | | | 150 | | | | | 155 | | | | |
| gcc | cct | cag | ggc | aaa | gtg | aag | gtg | tca | tag | aaaagtggaa | gtgcaaagag | | | | | 653 |
| Ala | Pro | Gln | Gly | Lys | Val | Lys | Val | Ser | | | | | | | | |
| | 160 | | | | | 165 | | | | | | | | | | |
| tggaaccttc | aggcagttgc | gtccatgaca | ccaggaagat | gtcagtgtgt | gtttttcatt | | | | | | | | | | | 713 |
| tgatttattt | atcttgggga | aagtgaaaaa | tgtaatctgc | aagttaatga | ccctattggc | | | | | | | | | | | 773 |
| ttgtgtacat | ctatatgcta | aaatgacttc | cccacattga | catttgtgcg | ccacctttaa | | | | | | | | | | | 833 |
| tcactctggg | gcaactctca | catcttgctg | catgtacatg | tatacggcta | ctattgaagt | | | | | | | | | | | 893 |
| gtaattgtga | gatggactcc | aacaagcatg | tgactgtgag | attgtgtgtg | ggaaaatgta | | | | | | | | | | | 953 |
| tttaactact | ctgtgtgtgt | gtgtgtgtgt | gtgtgcgcac | gcgcgcacgc | gcacacactc | | | | | | | | | | | 1013 |
| acgcacacac | aagcagagaa | ggcgtgatc | ttgaactaat | cctgcacagg | catccttccc | | | | | | | | | | | 1073 |
| tttatagatt | gattccagca | aaggcggaat | aaaacaaatt | tcctatgaag | agaatcctga | | | | | | | | | | | 1133 |
| tatgaaacaa | gtcatgtagt | ctcatggccg | ggaatctctc | cacagatact | aacaacttaa | | | | | | | | | | | 1193 |
| acttactact | ttaggagaaa | aaaaaaaaaca | ttcaatttcg | gacactgagt | tatatatgaa | | | | | | | | | | | 1253 |
| attaattagg | ctctagtcca | acagttgttt | acattttaaa | tagtccatat | tgaatttaat | | | | | | | | | | | 1313 |
| taaaacaagg | gatgcatgca | gtcaaattga | tagtttaatt | cttcaagtga | taatatagga | | | | | | | | | | | 1373 |
| agtttcacct | tgcctttgtc | caagccccac | ctattaaaac | cctttactca | cagtttgaaa | | | | | | | | | | | 1433 |
| ctgaagcagt | aaacttgttt | ccagacatct | ttttcagatt | gtcttaagcc | caaagttgcc | | | | | | | | | | | 1493 |
| tcacttcac | tattctcagc | agccaaccag | gatttggcag | ctgctccact | gttacggttg | | | | | | | | | | | 1553 |
| agggaacagg | gatcagccct | gttagaagtc | tgtgagcctc | aaactctacc | tgttctctgc | | | | | | | | | | | 1613 |
| aatcatccaa | aatttgaaaa | agaagctata | tccagtgttt | cactgccaaa | cagattcact | | | | | | | | | | | 1673 |
| actcttactg | attcttcact | gagctttgct | agtataagca | gagttccaag | tctcccctag | | | | | | | | | | | 1733 |
| ggttgtctct | acatttcttt | atcattccag | tgggtagggt | ttagctgggg | gaaggacatt | | | | | | | | | | | 1793 |
| tcataagggt | tagttggact | gagcagtatg | gacatttgct | tttttcatta | cgtactgttg | | | | | | | | | | | 1853 |

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tttttccttg ttaggtgtgc tttggtggtt ttaatatatt tgtgccaggg atgggggaaat 1913
 ggggggggggtt gtgtgggaag agtacttatt attgtgtttt cttcagtgtg attgttcttg 1973
 gtaattgata cctctctggt ttatttctct cattctttca aaataaaaact ttttgaaatt 2033
 tggagg 2039

<210> 39
 <211> 167
 <212> PRT
 <213> homo sapiens

<400> 39

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Gly Leu Phe Phe Val Phe Met Gly Thr Ile Lys Leu Thr Pro Arg Leu
20 25 30

Ser Lys Asp Ala Tyr Ser Glu Met Lys Arg Ala Tyr Lys Ser Tyr Val
35 40 45

Arg Ala Leu Pro Leu Leu Lys Lys Met Gly Ile Asn Ser Ile Leu Leu
50 55 60

Arg Lys Ser Ile Gly Ala Leu Glu Val Ala Cys Gly Ile Val Met Thr
65 70 75 80

Leu Val Pro Gly Arg Pro Lys Asp Val Ala Asn Phe Phe Leu Leu Leu
85 90 95

Leu Val Leu Ala Val Leu Phe Phe His Gln Leu Val Gly Asp Pro Leu
100 105 110

Lys Arg Tyr Ala His Ala Leu Val Phe Gly Ile Leu Leu Thr Cys Arg
115 120 125

Leu Leu Ile Ala Arg Lys Pro Glu Asp Arg Ser Ser Glu Lys Lys Pro
130 135 140

Leu Pro Gly Asn Ala Glu Glu Gln Pro Ser Leu Tyr Glu Lys Ala Pro
145 150 155 160

Gln Gly Lys Val Lys Val Ser
165

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 <212> DNA
 <213> homo sapiens

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 Met Tyr Ser Glu Ile Gln Arg Glu Arg Ala Asp Ile
 1 5 10
 ggg ggc ctg atg gcc cgg cca gaa tac aga gag tgg aat ccg gag ctc 158
 Gly Gly Leu Met Ala Arg Pro Glu Tyr Arg Glu Trp Asn Pro Glu Leu
 15 20 25
 atc aag ccc aag aag ctg ctg aac ccc gtg aag gcc tct cgg agt cac 206
 Ile Lys Pro Lys Lys Leu Leu Asn Pro Val Lys Ala Ser Arg Ser His
 30 35 40
 cag gag ctc cac cgg gag ctg ctc atg aac cac aga agg ggc ctt ggt 254
 Gln Glu Leu His Arg Glu Leu Leu Met Asn His Arg Arg Gly Leu Gly
 45 50 55 60
 gtg gac agc aag cca gag ctg cag cgt gtc cta gag cac cgc cgg cgg 302
 Val Asp Ser Lys Pro Glu Leu Gln Arg Val Leu Glu His Arg Arg Arg
 65 70 75
 aac cag ctc atc aag aag aag aag gag gag ctg gaa gcc aag cgg ctg 350
 Asn Gln Leu Ile Lys Lys Lys Lys Glu Glu Leu Glu Ala Lys Arg Leu
 80 85 90
 cag tgc ccc ttt gag cag gag ctg ctg aga cgg cag cag agg ctg aac 398
 Gln Cys Pro Phe Glu Gln Glu Leu Leu Arg Arg Gln Gln Arg Leu Asn
 95 100 105
 cag ctg gaa aaa cca cca gag aag gaa gag gat cac gcc ccc gag ttt 446
 Gln Leu Glu Lys Pro Pro Glu Lys Glu Glu Asp His Ala Pro Glu Phe
 110 115 120
 att aaa gtc agg gaa aac ctg cgg aga att gcc aca ctg acc agc gaa 494
 Ile Lys Val Arg Glu Asn Leu Arg Arg Ile Ala Thr Leu Thr Ser Glu
 125 130 135 140
 gag aga gag ctg tag ggccagctgc cgggctcagg ccaactgccca ccttggcctg 549
 Glu Arg Glu Leu
 gacagcctcc ttcagccctt ctgtacctgg cagccctggg cccagggccc tgggacgtct 609
 gtgatgttcc cacctgcttc tgtagaaatg tgtcacccca gagggcctgg ctctccctgg 669
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61835-3.ST25.txt

```

gagggataac ctgcaccct cctgcaagg ggttcagagc ccagcacagg agctttctct 789
ggcagaattg aggaggaaga ggtggccctc tgacttgaca agccttctgt tctgcccagg 849
ccttcccacc aggaatctcc gaggtcccc agggccccgc ttctccgtac accccagctc 909
ctaggtctca gagaactccc ccacctgtgg ttttacctgc agccagcaga gcttagcttc 969
aaggacacct gccttcaaag ccaactgagg gaggaagggc agggcagact gcaggtggcc 1029
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ctgggagatc ctgcatttct aacaagctcc caggtaaggc ggaggctgct ggtgtgagga 1329
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gcccgtaag actttggcct agcaaattgt gttggttatg tgagtgttgt ttaaatcaga 1569
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<213> homo sapiens

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<400> 41
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1           5           10           15

```

```

Ala Arg Pro Glu Tyr Arg Glu Trp Asn Pro Glu Leu Ile Lys Pro Lys
          20           25           30

```

```

Lys Leu Leu Asn Pro Val Lys Ala Ser Arg Ser His Gln Glu Leu His
          35           40           45

```

```

Arg Glu Leu Leu Met Asn His Arg Arg Gly Leu Gly Val Asp Ser Lys
          50           55           60

```

```

Pro Glu Leu Gln Arg Val Leu Glu His Arg Arg Arg Asn Gln Leu Ile
65           70           75           80

```

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Lys Lys Lys Lys Glu Glu Leu Glu Ala Lys Arg Leu Gln Cys Pro Phe
85 90 95

Glu Gln Glu Leu Leu Arg Arg Gln Gln Arg Leu Asn Gln Leu Glu Lys
100 105 110

Pro Pro Glu Lys Glu Glu Asp His Ala Pro Glu Phe Ile Lys Val Arg
115 120 125

Glu Asn Leu Arg Arg Ile Ala Thr Leu Thr Ser Glu Glu Arg Glu Leu
130 135 140

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atctcttcat ttaaaaacag aactttgttg ttaactgtgg aaaagaaatt gttattggag 180
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<210> 43
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<212> DNA
<213> homo sapiens

<220>
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<222> (351)..(1775)

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ggaactataa ctctctgctg agaggcggag aactccttcc ccaaattctt tggggacttt 180
tctctcttta ccacactccg cccctgctgag gagttgaggg gccagttcgg ccgccgcgcg 240
cgtcttcccc ttcggcgtgt gcttgccccg gggaaccggg agggcccggc gatcgcgcg 300
cggccgccgc gaggggtgtga gcgcgcgtgg gcgcccgcgg agccgaggcc atg gtg 356
Met Val
1
cag caa acc aac aat gcc gag aac acg gaa gcg ctg ctg gcc ggc gag 404

61835-3.ST25.txt

| Gln | Gln | Thr | Asn | Asn | Ala | Glu | Asn | Thr | Glu | Ala | Leu | Leu | Ala | Gly | Glu | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| | | 5 | | | | | 10 | | | | | 15 | | | | |
| agc | tcg | gac | tcg | ggc | gcc | ggc | ctc | gag | ctg | gga | atc | gcc | tcc | tcc | ccc | 452 |
| Ser | Ser | Asp | Ser | Gly | Ala | Gly | Leu | Glu | Leu | Gly | Ile | Ala | Ser | Ser | Pro | |
| | 20 | | | | | 25 | | | | | 30 | | | | | |
| acg | ccc | ggc | tcc | acc | gcc | tcc | acg | ggc | ggc | aag | gcc | gac | gac | ccg | agc | 500 |
| Thr | Pro | Gly | Ser | Thr | Ala | Ser | Thr | Gly | Gly | Lys | Ala | Asp | Asp | Pro | Ser | |
| 35 | | | | | 40 | | | | | 45 | | | | | 50 | |
| tgg | tgc | aag | acc | ccg | agt | ggg | cac | atc | aag | cga | ccc | atg | aac | gcc | ttc | 548 |
| Trp | Cys | Lys | Thr | Pro | Ser | Gly | His | Ile | Lys | Arg | Pro | Met | Asn | Ala | Phe | |
| | | | | 55 | | | | | 60 | | | | | 65 | | |
| atg | gtg | tgg | tcg | cag | atc | gag | cgg | cgc | aag | atc | atg | gag | cag | tcg | ccc | 596 |
| Met | Val | Trp | Ser | Gln | Ile | Glu | Arg | Arg | Lys | Ile | Met | Glu | Gln | Ser | Pro | |
| | | | 70 | | | | | 75 | | | | | 80 | | | |
| gac | atg | cac | aac | gcc | gag | atc | tcc | aag | cgg | ctg | ggc | aaa | cgc | tgg | aag | 644 |
| Asp | Met | His | Asn | Ala | Glu | Ile | Ser | Lys | Arg | Leu | Gly | Lys | Arg | Trp | Lys | |
| | | 85 | | | | | 90 | | | | | 95 | | | | |
| ctg | ctc | aaa | gac | agc | gac | aag | atc | cct | ttc | att | cga | gag | gcg | gag | cgg | 692 |
| Leu | Leu | Lys | Asp | Ser | Asp | Lys | Ile | Pro | Phe | Ile | Arg | Glu | Ala | Glu | Arg | |
| | 100 | | | | | 105 | | | | | 110 | | | | | |
| ctg | cgc | ctc | aag | cac | atg | gct | gac | tac | ccc | gac | tac | aag | tac | cgg | ccc | 740 |
| Leu | Arg | Leu | Lys | His | Met | Ala | Asp | Tyr | Pro | Asp | Tyr | Lys | Tyr | Arg | Pro | |
| 115 | | | | | 120 | | | | | 125 | | | | | 130 | |
| agg | aag | aag | gtg | aag | tcc | ggc | aac | gcc | aac | tcc | agc | tcc | tcg | gcc | gcc | 788 |
| Arg | Lys | Lys | Val | Lys | Ser | Gly | Asn | Ala | Asn | Ser | Ser | Ser | Ser | Ala | Ala | |
| | | | | 135 | | | | | 140 | | | | | 145 | | |
| gcc | tcc | tcc | aag | ccg | ggg | gag | aag | gga | gac | aag | gtc | ggt | ggc | agt | ggc | 836 |
| Ala | Ser | Ser | Lys | Pro | Gly | Glu | Lys | Gly | Asp | Lys | Val | Gly | Gly | Ser | Gly | |
| | | | 150 | | | | | 155 | | | | | 160 | | | |
| ggg | ggc | ggc | cat | ggg | ggc | ggc | ggc | ggc | ggc | ggg | agc | agc | aac | gcg | ggg | 884 |
| Gly | Gly | Gly | His | Gly | Gly | Gly | Gly | Gly | Gly | Gly | Ser | Ser | Asn | Ala | Gly | |
| | | 165 | | | | | 170 | | | | | 175 | | | | |
| gga | gga | ggc | ggc | ggt | gcg | agt | ggc | ggc | ggc | gcc | aac | tcc | aaa | ccg | gcg | 932 |
| Gly | Gly | Gly | Gly | Gly | Ala | Ser | Gly | Gly | Gly | Ala | Asn | Ser | Lys | Pro | Ala | |
| | 180 | | | | | 185 | | | | | 190 | | | | | |
| cag | aaa | aag | agc | tgc | ggc | tcc | aaa | gtg | gcg | ggc | ggc | gcg | ggc | ggt | ggg | 980 |
| Gln | Lys | Lys | Ser | Cys | Gly | Ser | Lys | Val | Ala | Gly | Gly | Ala | Gly | Gly | Gly | |
| 195 | | | | | 200 | | | | | 205 | | | | | 210 | |
| gtt | agc | aaa | ccg | cac | gcc | aag | ctc | atc | ctg | gca | ggc | ggc | ggc | ggc | ggc | 1028 |
| Val | Ser | Lys | Pro | His | Ala | Lys | Leu | Ile | Leu | Ala | Gly | Gly | Gly | Gly | Gly | |
| | | | | 215 | | | | | 220 | | | | | 225 | | |
| ggg | aaa | gca | gcg | gct | gcc | gcc | gcc | gcc | tcc | ttc | gcc | gcc | gaa | cag | gcg | 1076 |
| Gly | Lys | Ala | Ala | Ala | Ala | Ala | Ala | Ala | Ser | Phe | Ala | Ala | Glu | Gln | Ala | |
| | | | 230 | | | | | 235 | | | | | 240 | | | |

61835-3.ST25.txt

| | |
|---|------|
| ggg gcc gcc gcc ctg ctg ccc ctg ggc gcc gcc gcc gac cac cac tcg | 1124 |
| Gly Ala Ala Ala Leu Leu Pro Leu Gly Ala Ala Ala Asp His His Ser | |
| 245 250 255 | |
| ctg tac aag gcg cgg act ccc agc gcc tcg gcc tcc gcc tcc tcg gca | 1172 |
| Leu Tyr Lys Ala Arg Thr Pro Ser Ala Ser Ala Ser Ser Ser Ala | |
| 260 265 270 | |
| gcc tcg gcc tcc gca gcg ctc gcg gcc ccg ggc aag cac ctg gcg gag | 1220 |
| Ala Ser Ala Ser Ala Ala Leu Ala Ala Pro Gly Lys His Leu Ala Glu | |
| 275 280 285 290 | |
| aag aag gtg aag cgc gtc tac ctg ttc ggc ggc ctg ggc acg tcg tcg | 1268 |
| Lys Lys Val Lys Arg Val Tyr Leu Phe Gly Gly Leu Gly Thr Ser Ser | |
| 295 300 305 | |
| tcg ccc gtg ggc ggc gtg ggc gcg gga gcc gac ccc agc gac ccc ctg | 1316 |
| Ser Pro Val Gly Gly Val Gly Ala Gly Ala Asp Pro Ser Asp Pro Leu | |
| 310 315 320 | |
| ggc ctg tac gag gag gag ggc gcg ggc tgc tcg ccc gac gcg ccc agc | 1364 |
| Gly Leu Tyr Glu Glu Glu Gly Ala Gly Cys Ser Pro Asp Ala Pro Ser | |
| 325 330 335 | |
| ctg agc ggc cgc agc agc gcc gcc tcg tcc ccc gcc gcc ggc cgc tcg | 1412 |
| Leu Ser Gly Arg Ser Ser Ala Ala Ser Ser Pro Ala Ala Gly Arg Ser | |
| 340 345 350 | |
| ccc gcc gac cac cgc ggc tac gcc agc ctg cgc gcc gcc tcg ccc gcc | 1460 |
| Pro Ala Asp His Arg Gly Tyr Ala Ser Leu Arg Ala Ala Ser Pro Ala | |
| 355 360 365 370 | |
| ccg tcc agc gcg ccc tcg cac gcg tcc tcc tcg gcc tcg tcc cac tcc | 1508 |
| Pro Ser Ser Ala Pro Ser His Ala Ser Ser Ser Ala Ser Ser His Ser | |
| 375 380 385 | |
| tcc tct tcc tcc tcc tcg ggc tcc tcg tcc tcc gac gac gag ttc gaa | 1556 |
| Ser Ser Ser Ser Ser Ser Gly Ser Ser Ser Ser Asp Asp Glu Phe Glu | |
| 390 395 400 | |
| gac gac ctg ctc gac ctg aac ccc agc tca aac ttt gag agc atg tcc | 1604 |
| Asp Asp Leu Leu Asp Leu Asn Pro Ser Ser Asn Phe Glu Ser Met Ser | |
| 405 410 415 | |
| ctg ggc agc ttc agt tcg tcg tcg gcg ctc gac cgg gac ctg gat ttt | 1652 |
| Leu Gly Ser Phe Ser Ser Ser Ser Ala Leu Asp Arg Asp Leu Asp Phe | |
| 420 425 430 | |
| aac ttc gag ccc ggc tcc ggc tcg cac ttc gag ttc ccg gac tac tgc | 1700 |
| Asn Phe Glu Pro Gly Ser Gly Ser His Phe Glu Phe Pro Asp Tyr Cys | |
| 435 440 445 450 | |
| acg ccc gag gtg agc gag atg atc tcg gga gac tgg ctc gag tcc agc | 1748 |
| Thr Pro Glu Val Ser Glu Met Ile Ser Gly Asp Trp Leu Glu Ser Ser | |
| 455 460 465 | |
| atc tcc aac ctg gtt ttc acc tac tga agggcgcgca ggcagggaga | 1795 |
| Ile Ser Asn Leu Val Phe Thr Tyr | |
| 470 | |

61835-3.ST25.txt

```

agggccgggg ggggtaggag aggagaaaaa aaaagtgaaa aaaagaaacg aaaaggacag 1855
acgaagagtt taaagagaaa agggaaaaaa gaaagaaaaa gtaagcaggg ctcgttcgcc 1915
cgcgttctcg tcgtcggatc aaggagcgcg gcggcgtttt ggacccgcgc tcccatcccc 1975
caccttcccc ggccggggac ccactctgcc cagccggagg gacgcggagg aggaagaggg 2035
tagacagggg cgacctgtga ttgttgttat tgatgttggt gttgatggca aaaaaaaaaa 2095
gcgacttcga gtttgctccc ctttgcttga agagaccccc tcccccttcc aacgagcttc 2155
cggacttgtc tgcacccccca gcaagaaggc gagttagttt tctagagact tgaaggagtc 2215
tcccccttcc tgcataacca ccttggtttt gttttatttt gcttcttggg caagaaagga 2275
ggggagaacc cagcgcaccc ctccccccct ttttttaaac gcgtgatgaa gacagaaggc 2335
tccgggggtga cgaatttggc cgatggcaga tgttttgggg gaacgccggg actgagagac 2395
tccacgcagg cgaattcccc tttggggcct ttttttctc cctcttttcc ccttgcccc 2455
tctgcagccg gaggaggaga tgttgagggg aggaggccag ccagtgtgac cggcgctagg 2515
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ggacacgaac tggaaggggg ttcacggtca aactgaaatg gatttgcacg ttggggagct 2635
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tcccagaccc cggaggcgtg gaggagagga gactgtttga tgtggtacag gggcagtcag 2755
tggagggcga gtggtttcgg aaaaaaaaaa agaaaaaaag gg 2797

```

```

<210> 44
<211> 474
<212> PRT
<213> homo sapiens

```

<400> 44

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Met Val Gln Gln Thr Asn Asn Ala Glu Asn Thr Glu Ala Leu Leu Ala
1          5          10          15

```

```

Gly Glu Ser Ser Asp Ser Gly Ala Gly Leu Glu Leu Gly Ile Ala Ser
20          25          30

```

```

Ser Pro Thr Pro Gly Ser Thr Ala Ser Thr Gly Gly Lys Ala Asp Asp
35          40          45

```

```

Pro Ser Trp Cys Lys Thr Pro Ser Gly His Ile Lys Arg Pro Met Asn
50          55          60

```

61835-3.ST25.txt

Ala Phe Met Val Trp Ser Gln Ile Glu Arg Arg Lys Ile Met Glu Gln
 65 70 75 80

Ser Pro Asp Met His Asn Ala Glu Ile Ser Lys Arg Leu Gly Lys Arg
 85 90 95

Trp Lys Leu Leu Lys Asp Ser Asp Lys Ile Pro Phe Ile Arg Glu Ala
 100 105 110

Glu Arg Leu Arg Leu Lys His Met Ala Asp Tyr Pro Asp Tyr Lys Tyr
 115 120 125

Arg Pro Arg Lys Lys Val Lys Ser Gly Asn Ala Asn Ser Ser Ser Ser
 130 135 140

Ala Ala Ala Ser Ser Lys Pro Gly Glu Lys Gly Asp Lys Val Gly Gly
 145 150 155 160

Ser Gly Gly Gly Gly His Gly Gly Gly Gly Gly Gly Gly Ser Ser Asn
 165 170 175

Ala Gly Gly Gly Gly Gly Gly Ala Ser Gly Gly Gly Ala Asn Ser Lys
 180 185 190

Pro Ala Gln Lys Lys Ser Cys Gly Ser Lys Val Ala Gly Gly Ala Gly
 195 200 205

Gly Gly Val Ser Lys Pro His Ala Lys Leu Ile Leu Ala Gly Gly Gly
 210 215 220

Gly Gly Gly Lys Ala Ala Ala Ala Ala Ala Ser Phe Ala Ala Glu
 225 230 235 240

Gln Ala Gly Ala Ala Ala Leu Leu Pro Leu Gly Ala Ala Ala Asp His
 245 250 255

His Ser Leu Tyr Lys Ala Arg Thr Pro Ser Ala Ser Ala Ser Ala Ser
 260 265 270

Ser Ala Ala Ser Ala Ser Ala Ala Leu Ala Ala Pro Gly Lys His Leu
 275 280 285

Ala Glu Lys Lys Val Lys Arg Val Tyr Leu Phe Gly Gly Leu Gly Thr
 290 295 300

61835-3.ST25.txt

Ser Ser Ser Pro Val Gly Gly Val Gly Ala Gly Ala Asp Pro Ser Asp
305 310 315 320

Pro Leu Gly Leu Tyr Glu Glu Glu Gly Ala Gly Cys Ser Pro Asp Ala
325 330 335

Pro Ser Leu Ser Gly Arg Ser Ser Ala Ala Ser Ser Pro Ala Ala Gly
340 345 350

Arg Ser Pro Ala Asp His Arg Gly Tyr Ala Ser Leu Arg Ala Ala Ser
355 360 365

Pro Ala Pro Ser Ser Ala Pro Ser His Ala Ser Ser Ser Ala Ser Ser
370 375 380

His Ser Ser Ser Ser Ser Ser Ser Gly Ser Ser Ser Ser Asp Asp Glu
385 390 395 400

Phe Glu Asp Asp Leu Leu Asp Leu Asn Pro Ser Ser Asn Phe Glu Ser
405 410 415

Met Ser Leu Gly Ser Phe Ser Ser Ser Ser Ala Leu Asp Arg Asp Leu
420 425 430

Asp Phe Asn Phe Glu Pro Gly Ser Gly Ser His Phe Glu Phe Pro Asp
435 440 445

Tyr Cys Thr Pro Glu Val Ser Glu Met Ile Ser Gly Asp Trp Leu Glu
450 455 460

Ser Ser Ile Ser Asn Leu Val Phe Thr Tyr
465 470

<210> 45
<211> 1334
<212> DNA
<213> homo sapiens

<220>
<221> CDS
<222> (14)..(601)

<400> 45
gcagaccccc atc atg ggc agc cag agc tcc aag gct ccc cgg ggc gac
Met Gly Ser Gln Ser Ser Lys Ala Pro Arg Gly Asp
1 5 10

49

61835-3.ST25.txt

| | |
|---|-----|
| gtg acc gcc gag gag gca gca ggc gct tcc ccc gcg aag gcc aac ggc Val Thr Ala Glu Glu Ala Ala Gly Ala Ser Pro Ala Lys Ala Asn Gly 15 20 25 | 97 |
| cag gag aat ggc cac gtg aaa agc aat gga gac tta tcc ccc aag ggt Gln Glu Asn Gly His Val Lys Ser Asn Gly Asp Leu Ser Pro Lys Gly 30 35 40 | 145 |
| gaa ggg gag tcg ccc cct gtg aac gga aca gat gag gca gcc ggg gcc Glu Gly Glu Ser Pro Pro Val Asn Gly Thr Asp Glu Ala Ala Gly Ala 45 50 55 60 | 193 |
| act ggc gat gcc atc gag cca gca ccc cct agc cag ggt gct gag gcc Thr Gly Asp Ala Ile Glu Pro Ala Pro Pro Ser Gln Gly Ala Glu Ala 65 70 75 | 241 |
| aag ggg gag gtc ccc ccc aag gag acc ccc aag aag aag aag aaa ttc Lys Gly Glu Val Pro Pro Lys Glu Thr Pro Lys Lys Lys Lys Lys Phe 80 85 90 | 289 |
| tct ttc aag aag cct ttc aaa ttg agc ggc ctg tcc ttc aag aga aat Ser Phe Lys Lys Pro Phe Lys Leu Ser Gly Leu Ser Phe Lys Arg Asn 95 100 105 | 337 |
| cgg aag gag ggt ggg ggt gat tct tct gcc tcc tca ccc aca gag gaa Arg Lys Glu Gly Gly Gly Asp Ser Ser Ala Ser Ser Pro Thr Glu Glu 110 115 120 | 385 |
| gag cag gag cag ggg gag atc ggt gcc tgc agc gac gag ggc act gct Glu Gln Glu Gln Gly Glu Ile Gly Ala Cys Ser Asp Glu Gly Thr Ala 125 130 135 140 | 433 |
| cag gaa ggg aag gcc gca gcc acc cct gag agc cag gaa ccc cag gcc Gln Glu Gly Lys Ala Ala Ala Thr Pro Glu Ser Gln Glu Pro Gln Ala 145 150 155 | 481 |
| aag ggg gca gag gct agt gca gcc tca gaa gaa gag gca ggg ccc cag Lys Gly Ala Glu Ala Ser Ala Ala Ser Glu Glu Glu Ala Gly Pro Gln 160 165 170 | 529 |
| gct aca gag cca tcc act ccc tcg ggg ccg gag agt ggc cct aca cca Ala Thr Glu Pro Ser Thr Pro Ser Gly Pro Glu Ser Gly Pro Thr Pro 175 180 185 | 577 |
| gcc agc gct gag cag aat gag tag ctaggtaggg gcaggtgggt gatctctaag Ala Ser Ala Glu Gln Asn Glu 190 195 | 631 |
| ctgcaaaaac tgtgctgtcc ttgtgaggtc actgcctgga cctggtgccc tggctgcctt | 691 |
| cctgtgcccc gaaaggaagg ggctattgcc tctctccagc cacgttccct tctctctct | 751 |
| ccctcctgtg gattctccca tcagccatct gggtctctctc ttaaggccag ttgaagatgg | 811 |
| tcccttacag cttcccaagt taggttagtg atgtgaaatg ctctgtccc tggccctacc | 871 |
| tccttccttg tccccacccc tgcataaggc agttgttggt tttcttcccc aattcttttc | 931 |

61835-3.ST25.txt

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caagtagggtt ttgtttaccc tactcccca atccctgagc cagaagtggg gtgcttatac    991
tcccaaacct tgagtgtcca gccttccctt gttgttttta gtctcttggtg ctgtgcctag    1051
tggcacctgg gctggggagg aactgcccc gtctagggtt ttataaatgt cttactcaag    1111
ttcaaacctc cagcctgtga atcaactgtg tctctttttt gacttggtaa gcaagtatta    1171
ggctttgggg tggggggagg tctgtaattg gaaacaactt cttgtctttt tttctccac    1231
tgttgtaaat aactttta atggccaaaccc cagatttgta cttttttttt ttttctaact    1291
gctaaaacca ttctcttcca cctggtttta ctgtaacatt tgg                        1334

```

<210> 46

<211> 195

<212> PRT

<213> homo sapiens

<400> 46

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Met Gly Ser Gln Ser Ser Lys Ala Pro Arg Gly Asp Val Thr Ala Glu
1          5          10          15

```

```

Glu Ala Ala Gly Ala Ser Pro Ala Lys Ala Asn Gly Gln Glu Asn Gly
20          25          30

```

```

His Val Lys Ser Asn Gly Asp Leu Ser Pro Lys Gly Glu Gly Glu Ser
35          40          45

```

```

Pro Pro Val Asn Gly Thr Asp Glu Ala Ala Gly Ala Thr Gly Asp Ala
50          55          60

```

```

Ile Glu Pro Ala Pro Pro Ser Gln Gly Ala Glu Ala Lys Gly Glu Val
65          70          75          80

```

```

Pro Pro Lys Glu Thr Pro Lys Lys Lys Lys Lys Phe Ser Phe Lys Lys
85          90          95

```

```

Pro Phe Lys Leu Ser Gly Leu Ser Phe Lys Arg Asn Arg Lys Glu Gly
100          105          110

```

```

Gly Gly Asp Ser Ser Ala Ser Ser Pro Thr Glu Glu Glu Gln Glu Gln
115          120          125

```

```

Gly Glu Ile Gly Ala Cys Ser Asp Glu Gly Thr Ala Gln Glu Gly Lys
130          135          140

```

```

Ala Ala Ala Thr Pro Glu Ser Gln Glu Pro Gln Ala Lys Gly Ala Glu

```

```

145                      150                      155                      160

Ala Ser Ala Ala Ser Glu Glu Glu Ala Gly Pro Gln Ala Thr Glu Pro
                      165                      170                      175

Ser Thr Pro Ser Gly Pro Glu Ser Gly Pro Thr Pro Ala Ser Ala Glu
                      180                      185                      190

Gln Asn Glu
                      195

<210> 47
<211> 662
<212> DNA
<213> homo sapiens

<220>
<221> CDS
<222> (49)..(456)

<400> 47
accgccgacg cagacccttc tctgcacgcc agcccgcccg caccacc atg gcc aca      57
                                   Met Ala Thr
                                   1

gtt cag cag ctg gaa gga aga tgg cgc ctg gtg gac agc aaa ggc ttt      105
Val Gln Gln Leu Glu Gly Arg Trp Arg Leu Val Asp Ser Lys Gly Phe
   5                      10                      15

gat gaa tac atg aag gag cta gga gtg gga ata gct ttg cga aaa atg      153
Asp Glu Tyr Met Lys Glu Leu Gly Val Gly Ile Ala Leu Arg Lys Met
  20                      25                      30                      35

ggc gca atg gcc aag cca gat tgt atc atc act tgt gat ggt aaa aac      201
Gly Ala Met Ala Lys Pro Asp Cys Ile Ile Thr Cys Asp Gly Lys Asn
                      40                      45                      50

ctc acc ata aaa act gag agc act ttg aaa aca aca cag ttt tct tgt      249
Leu Thr Ile Lys Thr Glu Ser Thr Leu Lys Thr Thr Gln Phe Ser Cys
                      55                      60                      65

acc ctg gga gag aag ttt gaa gaa acc aca gct gat ggc aga aaa act      297
Thr Leu Gly Glu Lys Phe Glu Glu Thr Thr Ala Asp Gly Arg Lys Thr
                      70                      75                      80

cag act gtc tgc aac ttt aca gat ggt gca ttg gtt cag cat cag gag      345
Gln Thr Val Cys Asn Phe Thr Asp Gly Ala Leu Val Gln His Gln Glu
                      85                      90                      95

tgg gat ggg aag gaa agc aca ata aca aga aaa ttg aaa gat ggg aaa      393
Trp Asp Gly Lys Glu Ser Thr Ile Thr Arg Lys Leu Lys Asp Gly Lys
  100                      105                      110                      115

tta gtg gtg gag tgt gtc atg aac aat gtc acc tgt act cgg atc tat      441

```

61835-3.ST25.txt

Leu Val Val Glu Cys Val Met Asn Asn Val Thr Cys Thr Arg Ile Tyr
120 125 130

gaa aaa gta gaa taa aaattccatc atcacttttg acaggagtta attaagagaa 496
Glu Lys Val Glu
135

tgaccaagct cagttcaatg agcaaattctc catactgttt ctttcttttt tttttcatta 556
ctgtgttcaa ttatctttat cataaacatt ttacatgcag ctatttcaaa gtgtgttgga 616
ttaattagga tcatcccttt ggtaataaaa taaatgtgtt tgtgct 662

<210> 48
<211> 135
<212> PRT
<213> homo sapiens

<400> 48

Met Ala Thr Val Gln Gln Leu Glu Gly Arg Trp Arg Leu Val Asp Ser
1 5 10 15

Lys Gly Phe Asp Glu Tyr Met Lys Glu Leu Gly Val Gly Ile Ala Leu
20 25 30

Arg Lys Met Gly Ala Met Ala Lys Pro Asp Cys Ile Ile Thr Cys Asp
35 40 45

Gly Lys Asn Leu Thr Ile Lys Thr Glu Ser Thr Leu Lys Thr Thr Gln
50 55 60

Phe Ser Cys Thr Leu Gly Glu Lys Phe Glu Glu Thr Thr Ala Asp Gly
65 70 75 80

Arg Lys Thr Gln Thr Val Cys Asn Phe Thr Asp Gly Ala Leu Val Gln
85 90 95

His Gln Glu Trp Asp Gly Lys Glu Ser Thr Ile Thr Arg Lys Leu Lys
100 105 110

Asp Gly Lys Leu Val Val Glu Cys Val Met Asn Asn Val Thr Cys Thr
115 120 125

Arg Ile Tyr Glu Lys Val Glu
130 135

<210> 49
<211> 2808

<212> DNA

<213> homo sapiens

<220>

<221> CDS

<222> (80)..(610)

<400> 49

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cagcagcggc agcggcagc atg tcg gcc gcc gga gcg tca gtc ccg ccg ccc      112
                Met Ser Ala Gly Gly Ala Ser Val Pro Pro Pro
                  1             5             10

ccg aac ccc gcc gtg tcc ttc ccg ccg ccc cgg gtc acc ctg ccc gcc      160
Pro Asn Pro Ala Val Ser Phe Pro Pro Pro Arg Val Thr Leu Pro Ala
              15             20             25

ggc ccc gac atc ctg cgg acc tac tcg ggc gcc ttc gtc tgc ctg gag      208
Gly Pro Asp Ile Leu Arg Thr Tyr Ser Gly Ala Phe Val Cys Leu Glu
              30             35             40

att ctg ttc ggg ggt ctt gtc tgg att ttg gtt gcc tcc tcc aat gtt      256
Ile Leu Phe Gly Gly Leu Val Trp Ile Leu Val Ala Ser Ser Asn Val
              45             50             55

cct cta cct cta cta caa gga tgg gtc atg ttt gtg tcc gtg aca gcg      304
Pro Leu Pro Leu Leu Gln Gly Trp Val Met Phe Val Ser Val Thr Ala
              60             65             70             75

ttt ttc ttt tcg ctc ctc ttt ctg ggc atg ttc ctc tct ggc atg gtg      352
Phe Phe Phe Ser Leu Leu Phe Leu Gly Met Phe Leu Ser Gly Met Val
              80             85             90

gct caa att gat gct aac tgg aac ttc ctg gat ttt gcc tac cat ttt      400
Ala Gln Ile Asp Ala Asn Trp Asn Phe Leu Asp Phe Ala Tyr His Phe
              95             100             105

aca gta ttt gtc ttc tat ttt gga gcc ttt tta ttg gaa gca gca gcc      448
Thr Val Phe Val Phe Tyr Phe Gly Ala Phe Leu Leu Glu Ala Ala Ala
              110             115             120

aca tcc ctg cat gat ttg cat tgc aat aca acc ata acc ggg cag cca      496
Thr Ser Leu His Asp Leu His Cys Asn Thr Thr Ile Thr Gly Gln Pro
              125             130             135

ctc ctg agt gat aac cag tat aac ata aac gta gca gcc tca att ttt      544
Leu Leu Ser Asp Asn Gln Tyr Asn Ile Asn Val Ala Ala Ser Ile Phe
              140             145             150             155

gcc ttt atg acg aca gct tgt tat ggt tgc agt ttg ggt ctg gct tta      592
Ala Phe Met Thr Thr Ala Cys Tyr Gly Cys Ser Leu Gly Leu Ala Leu
              160             165             170

cga aga tgg cga ccg taa cactccttag aaactggcag tcgtatgtta      640
Arg Arg Trp Arg Pro
              175

```

61835-3.ST25.txt

| | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|------|
| gtttcacttg | tctactttat | atgtctgatc | aattttggata | ccattttgtc | cagatgcaaa | 700 |
| aacattccaa | aagtaatgtg | tttagtagag | agagactcta | agctcaagtt | ctggttttatt | 760 |
| tcattggatgg | aatgtttaatt | ttattatgat | attaaagaaa | tggcctttta | ttttacatct | 820 |
| ctccccctttt | tccctttccc | cctttatttt | cctccttttc | tttctgaaag | tttcctttta | 880 |
| tgtccataaa | atacaaatat | attgttcata | aaaaattagt | atcccttttg | tttggttgct | 940 |
| gagtcacctg | aaccttaatt | ttaattggta | attacagccc | ctaaaaaaaa | cacatttcaa | 1000 |
| ataggcttcc | cactaaactc | tatatatttag | tgtaaaccag | gaattggcac | acttttttta | 1060 |
| gaatgggcca | gatggtaaatt | atttatgctt | cacgggtccat | acagtctctg | tcacaactat | 1120 |
| tcagttctgc | tagtatagcg | tgaaagcagc | tatacacaat | acagaaatga | atgagtgtgg | 1180 |
| ttatgttcta | ataaaactta | tttataaaaa | caaggggagg | ctgggttttag | cctgtggggc | 1240 |
| atagtttgtc | aaccactggg | gtaaaacctt | agttatatat | gatctgcatt | ttcttgaact | 1300 |
| gatcattgaa | aacttataaa | cctaacagaa | aagccacata | atatttagtg | tcattatgca | 1360 |
| ataatcacat | tgcctttgtg | ttaatagtca | aatacttacc | tttgagaaat | acttaccttt | 1420 |
| ggaggaatgt | ataaaatttc | tcaggcagag | tcctggatat | aggaaaaagt | aatttatgaa | 1480 |
| gtaaacttca | gttgcttaatt | caaactaatg | atagtctaac | aactgagcaa | gatcctcatc | 1540 |
| tgagagtgtc | taaaatggga | tccccagaga | ccattaacca | atactggaac | tggtatctag | 1600 |
| ctactgatgt | cttactttga | gtttatttat | gcttcagaat | acagttgttt | gccctgtgca | 1660 |
| tgaatatacc | catattttgtg | tgtggatatg | tgaagctttt | ccaaatagag | ctctcagaag | 1720 |
| aattaagttt | ttactttctaa | ttattttgca | ttactttgag | ttaaatttga | atagagtatt | 1780 |
| aaatataaag | ttgttagattc | ttatgtgttt | ttgtattagc | ccagacatct | gtaatgtttt | 1840 |
| tgcactgggtg | acagacaaaa | tctgttttaa | aatcatatcc | agcacaaaaa | ctattttctgg | 1900 |
| ctgaatagca | cagaaaagta | ttttaaccta | cctgtagaga | tcctcgtcat | ggaaagggtgc | 1960 |
| caaactgttt | tgaatggaag | gacaagtaag | agtgaggcca | cagttcccac | cacacgaggg | 2020 |
| cttttgtatt | gttctacttt | ttcagccctt | tactttctgg | ctgaagcatc | cccttggagt | 2080 |
| gccatgtata | agttgggcta | ttagagttca | tggaacatag | aacaaccatg | aatgagtggc | 2140 |
| atgatccgtg | cttaatgatc | aagtgttact | tatctaataa | tcctctagaa | agaaccctgt | 2200 |
| tagatcttgg | tttgtgataa | aaatataaag | acagaagaca | tgaggaaaaa | caaaagggttt | 2260 |
| gaggaaatca | ggcatatgac | tttataactta | acatcagatc | ttttctataa | tatcctacta | 2320 |
| ctttgggtttt | cctagctcca | taccacacac | ctaaacctgt | attatgaatt | acatattaca | 2380 |
| aagtcataaa | tgtgccatat | ggatatacag | tacattctag | ttggaatcgt | ttactctgct | 2440 |

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agaatttagg tgtgagattt tttgtttccc aggtatagca ggcttatggt tggtggcatt 2500
aaattggttt ctttaaaatg ctttggtggc acttttgtaa acagattgct tctagattgt 2560
tacaaaccaa gcctaagaca catctgtgaa tacttagatt tgtagcttaa tcacattcta 2620
gacttgtgag ttgaatgaca aagcagttga acaaaaatta tggcatttaa gaatttaaca 2680
tgtcttagct gtaaaaatga gaaagtgttg gttgggttta aaatctggta actccatgat 2740
gaaaagaaat ttattttata cgtgttatgt ctctaataaa gtattcattt gataaaaaaa 2800
aaaaaaaaa 2808

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<210> 50
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<212> PRT
<213> homo sapiens

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<400> 50

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```

```

Ser Phe Pro Pro Pro Arg Val Thr Leu Pro Ala Gly Pro Asp Ile Leu
          20          25          30

```

```

Arg Thr Tyr Ser Gly Ala Phe Val Cys Leu Glu Ile Leu Phe Gly Gly
          35          40          45

```

```

Leu Val Trp Ile Leu Val Ala Ser Ser Asn Val Pro Leu Pro Leu Leu
          50          55          60

```

```

Gln Gly Trp Val Met Phe Val Ser Val Thr Ala Phe Phe Phe Ser Leu
65          70          75          80

```

```

Leu Phe Leu Gly Met Phe Leu Ser Gly Met Val Ala Gln Ile Asp Ala
          85          90          95

```

```

Asn Trp Asn Phe Leu Asp Phe Ala Tyr His Phe Thr Val Phe Val Phe
          100          105          110

```

```

Tyr Phe Gly Ala Phe Leu Leu Glu Ala Ala Ala Thr Ser Leu His Asp
          115          120          125

```

```

Leu His Cys Asn Thr Thr Ile Thr Gly Gln Pro Leu Leu Ser Asp Asn
          130          135          140

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Gln Tyr Asn Ile Asn Val Ala Ala Ser Ile Phe Ala Phe Met Thr Thr
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Ala Cys Tyr Gly Cys Ser Leu Gly Leu Ala Leu Arg Arg Trp Arg Pro
 165 170 175

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 <213> Homo sapiens

<220>
 <221> CDS
 <222> (187)..(1575)

<400> 51
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 ccgaggaaag ccgtgttgac caaaagcaag acaaatgact cacagagaaa aaagatggca 120
 gaaccaaggg caactaaagc cgtcaggttc tgaacagctg gtagatgggc tggcttactg 180
 aaggac atg att cag act gtc ccg gac cca gca gct cat atc aag gaa 228
 Met Ile Gln Thr Val Pro Asp Pro Ala Ala His Ile Lys Glu
 1 5 10
 gcc tta tca gtt gtg agt gag gac cag tcg ttg ttt gag tgt gcc tac 276
 Ala Leu Ser Val Val Ser Glu Asp Gln Ser Leu Phe Glu Cys Ala Tyr
 15 20 25 30
 gga acg cca cac ctg gct aag aca gag atg acc gcg tcc tcc tcc agc 324
 Gly Thr Pro His Leu Ala Lys Thr Glu Met Thr Ala Ser Ser Ser Ser
 35 40 45
 gac tat gga cag act tcc aag atg agc cca cgc gtc cct cag cag gat 372
 Asp Tyr Gly Gln Thr Ser Lys Met Ser Pro Arg Val Pro Gln Gln Asp
 50 55 60
 tgg ctg tct caa ccc cca gcc agg gtc acc atc aaa atg gaa tgt aac 420
 Trp Leu Ser Gln Pro Pro Ala Arg Val Thr Ile Lys Met Glu Cys Asn
 65 70 75
 cct agc cag gtg aat ggc tca agg aac tct cct gat gaa tgc agt gtg 468
 Pro Ser Gln Val Asn Gly Ser Arg Asn Ser Pro Asp Glu Cys Ser Val
 80 85 90
 gcc aaa ggc ggg aag atg gtg ggc agc cca gac acc gtt ggg atg aac 516
 Ala Lys Gly Gly Lys Met Val Gly Ser Pro Asp Thr Val Gly Met Asn
 95 100 105 110
 tac ggc agc tac atg gag gag aag cac atg cca ccc cca aac atg acc 564
 Tyr Gly Ser Tyr Met Glu Glu Lys His Met Pro Pro Pro Asn Met Thr
 115 120 125
 acg aac gag cgc aga gtt atc gtg cca gca gat cct acg cta tgg agt 612
 Thr Asn Glu Arg Arg Val Ile Val Pro Ala Asp Pro Thr Leu Trp Ser

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| 130 | | | | 135 | | | | 140 | | | | |
|---|------|--|--|-----|--|--|--|-----|--|--|--|--|
| aca gac cat gtg cgg cag tgg ctg gag tgg gcg gtg aaa gaa tat ggc | 660 | | | | | | | | | | | |
| Thr Asp His Val Arg Gln Trp Leu Glu Trp Ala Val Lys Glu Tyr Gly | | | | | | | | | | | | |
| 145 150 155 | | | | | | | | | | | | |
| ctt cca gac gtc aac atc ttg tta ttc cag aac atc gat ggg aag gaa | 708 | | | | | | | | | | | |
| Leu Pro Asp Val Asn Ile Leu Leu Phe Gln Asn Ile Asp Gly Lys Glu | | | | | | | | | | | | |
| 160 165 170 | | | | | | | | | | | | |
| ctg tgc aag atg acc aag gac gac ttc cag agg ctc acc ccc agc tac | 756 | | | | | | | | | | | |
| Leu Cys Lys Met Thr Lys Asp Asp Phe Gln Arg Leu Thr Pro Ser Tyr | | | | | | | | | | | | |
| 175 180 185 190 | | | | | | | | | | | | |
| aac gcc gac atc ctt ctc tca cat ctc cac tac ctc aga gag act cct | 804 | | | | | | | | | | | |
| Asn Ala Asp Ile Leu Leu Ser His Leu His Tyr Leu Arg Glu Thr Pro | | | | | | | | | | | | |
| 195 200 205 | | | | | | | | | | | | |
| ctt cca cat ttg act tca gat gat gtt gat aaa gcc tta caa aac tct | 852 | | | | | | | | | | | |
| Leu Pro His Leu Thr Ser Asp Asp Val Asp Lys Ala Leu Gln Asn Ser | | | | | | | | | | | | |
| 210 215 220 | | | | | | | | | | | | |
| cca cgg tta atg cat gct aga aac aca gat tta cca tat gag ccc ccc | 900 | | | | | | | | | | | |
| Pro Arg Leu Met His Ala Arg Asn Thr Asp Leu Pro Tyr Glu Pro Pro | | | | | | | | | | | | |
| 225 230 235 | | | | | | | | | | | | |
| agg aga tca gcc tgg acc ggt cac ggc cac ccc acg ccc cag tcg aaa | 948 | | | | | | | | | | | |
| Arg Arg Ser Ala Trp Thr Gly His Gly His Pro Thr Pro Gln Ser Lys | | | | | | | | | | | | |
| 240 245 250 | | | | | | | | | | | | |
| gct gct caa cca tct cct tcc aca gtg ccc aaa act gaa gac cag cgt | 996 | | | | | | | | | | | |
| Ala Ala Gln Pro Ser Pro Ser Thr Val Pro Lys Thr Glu Asp Gln Arg | | | | | | | | | | | | |
| 255 260 265 270 | | | | | | | | | | | | |
| cct cag tta gat cct tat cag att ctt gga cca aca agt agc cgc ctt | 1044 | | | | | | | | | | | |
| Pro Gln Leu Asp Pro Tyr Gln Ile Leu Gly Pro Thr Ser Ser Arg Leu | | | | | | | | | | | | |
| 275 280 285 | | | | | | | | | | | | |
| gca aat cca ggc agt ggc cag atc cag ctt tgg cag ttc ctc ctg gag | 1092 | | | | | | | | | | | |
| Ala Asn Pro Gly Ser Gly Gln Ile Gln Leu Trp Gln Phe Leu Leu Glu | | | | | | | | | | | | |
| 290 295 300 | | | | | | | | | | | | |
| ctc ctg tcg gac agc tcc aac tcc agc tgc atc acc tgg gaa ggc acc | 1140 | | | | | | | | | | | |
| Leu Leu Ser Asp Ser Ser Asn Ser Ser Cys Ile Thr Trp Glu Gly Thr | | | | | | | | | | | | |
| 305 310 315 | | | | | | | | | | | | |
| aac ggg gag ttc aag atg acg gat ccc gac gag gtg gcc cgg cgc tgg | 1188 | | | | | | | | | | | |
| Asn Gly Glu Phe Lys Met Thr Asp Pro Asp Glu Val Ala Arg Arg Trp | | | | | | | | | | | | |
| 320 325 330 | | | | | | | | | | | | |
| gga gag cgg aag agc aaa ccc aac atg aac tac gat aag ctc agc cgc | 1236 | | | | | | | | | | | |
| Gly Glu Arg Lys Ser Lys Pro Asn Met Asn Tyr Asp Lys Leu Ser Arg | | | | | | | | | | | | |
| 335 340 345 350 | | | | | | | | | | | | |
| gcc ctc cgt tac tac tat gac aag aac atc atg acc aag gtc cat ggg | 1284 | | | | | | | | | | | |
| Ala Leu Arg Tyr Tyr Tyr Asp Lys Asn Ile Met Thr Lys Val His Gly | | | | | | | | | | | | |
| 355 360 365 | | | | | | | | | | | | |
| aag cgc tac gcc tac aag ttc gac ttc cac ggg atc gcc cag gcc ctc | 1332 | | | | | | | | | | | |

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| | | | | | | | | | | | | | | | | |
|-------------|-------------|------------|------------|------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Lys | Arg | Tyr | Ala | Tyr | Lys | Phe | Asp | Phe | His | Gly | Ile | Ala | Gln | Ala | Leu | |
| | | | 370 | | | | | 375 | | | | | 380 | | | |
| cag | ccc | cac | ccc | ccg | gag | tca | tct | ctg | tac | aag | tac | ccc | tca | gac | ctc | 1380 |
| Gln | Pro | His | Pro | Pro | Glu | Ser | Ser | Leu | Tyr | Lys | Tyr | Pro | Ser | Asp | Leu | |
| | | 385 | | | | | 390 | | | | | 395 | | | | |
| ccg | tac | atg | ggc | tcc | tat | cac | gcc | cac | cca | cag | aag | atg | aac | ttt | gtg | 1428 |
| Pro | Tyr | Met | Gly | Ser | Tyr | His | Ala | His | Pro | Gln | Lys | Met | Asn | Phe | Val | |
| | 400 | | | | | 405 | | | | | 410 | | | | | |
| gcg | ccc | cac | cct | cca | gcc | ctc | ccc | gtg | aca | tct | tcc | agt | ttt | ttt | gct | 1476 |
| Ala | Pro | His | Pro | Pro | Ala | Leu | Pro | Val | Thr | Ser | Ser | Ser | Phe | Phe | Ala | |
| 415 | | | | | 420 | | | | | 425 | | | | | 430 | |
| gcc | cca | aac | cca | tac | tgg | aat | tca | cca | act | ggg | ggg | ata | tac | ccc | aac | 1524 |
| Ala | Pro | Asn | Pro | Tyr | Trp | Asn | Ser | Pro | Thr | Gly | Gly | Ile | Tyr | Pro | Asn | |
| | | | 435 | | | | | 440 | | | | | | 445 | | |
| act | agg | ctc | ccc | acc | agc | cat | atg | cct | tct | cat | ctg | ggc | act | tac | tac | 1572 |
| Thr | Arg | Leu | Pro | Thr | Ser | His | Met | Pro | Ser | His | Leu | Gly | Thr | Tyr | Tyr | |
| | | 450 | | | | | | 455 | | | | 460 | | | | |
| taa | agacctggcg | gaggcttttc | ccatcagcgt | gcattcacca | gcccacgcgc | | | | | | | | | | | 1625 |
| acaaactcta | tcggagaaca | tgaatcaaaa | gtgcctcaag | aggaatgaaa | aaagctttac | | | | | | | | | | | 1685 |
| tggggctggg | gaaggaagcc | ggggaagaga | tccaaagact | cttgggaggg | agttactgaa | | | | | | | | | | | 1745 |
| gtcttactac | agaaatgagg | aggatgctaa | aaatgtcacg | aatatggaca | tatcatctgt | | | | | | | | | | | 1805 |
| ggactgacct | tgtaaaagac | agtgtatgta | gaagcatgaa | gtcttaagga | caaagtgcc | | | | | | | | | | | 1865 |
| aagaaagtgg | tcttaagaaa | tgtataaact | ttagagtaga | gtttggaatc | ccactaatgc | | | | | | | | | | | 1925 |
| aaactgggat | gaaactaaag | caatagaaac | aacacagttt | tgacctaa | taccgtttat | | | | | | | | | | | 1985 |
| aatgccattt | taaggaaaac | tacctgtatt | taaaaataga | aacatatcaa | aaacaagaga | | | | | | | | | | | 2045 |
| aaagacacga | gagagactgt | ggcccatcaa | cagacgttga | tatgcaactg | catggcatgt | | | | | | | | | | | 2105 |
| gctgttttgg | ttgaaatcaa | atacattccg | tttgatggac | agctgtcagc | tttctcaaac | | | | | | | | | | | 2165 |
| tgtgaagatg | acccaaagtt | tccaactcct | ttacagtatt | accgggacta | tgaactaaaa | | | | | | | | | | | 2225 |
| gggtgggactg | aggatgtgta | tagagtgagc | gtgtgattgt | agacagaggg | gtgaagaagg | | | | | | | | | | | 2285 |
| aggaggaaga | ggcagagaag | gaggagacca | ggctgggaaa | gaaacttctc | aagcaatgaa | | | | | | | | | | | 2345 |
| gactggactc | aggacatttg | gggactgtgt | acaatgagtt | atggagactc | gagggttcat | | | | | | | | | | | 2405 |
| gcagtcagtg | ttataccaaa | cccagtgtta | ggagaaagga | cacagcgtaa | tggagaaagg | | | | | | | | | | | 2465 |
| gaagtagtag | aattcagaaa | caaaaatgcg | catctctttc | tttgtttgtc | aaatgaaaat | | | | | | | | | | | 2525 |
| tttaactgga | attgtctgat | atttaagaga | aacattcagg | acctcatcat | tatgtggggg | | | | | | | | | | | 2585 |
| ctttgttctc | cacaggggtca | ggtaagagat | ggccttcttg | gctgccacaa | tcagaaatca | | | | | | | | | | | 2645 |

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 <212> PRT
 <213> Homo sapiens

<400> 52

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Ser Val Val Ser Glu Asp Gln Ser Leu Phe Glu Cys Ala Tyr Gly Thr
20 25 30

Pro His Leu Ala Lys Thr Glu Met Thr Ala Ser Ser Ser Ser Asp Tyr
35 40 45

Gly Gln Thr Ser Lys Met Ser Pro Arg Val Pro Gln Gln Asp Trp Leu
50 55 60

Ser Gln Pro Pro Ala Arg Val Thr Ile Lys Met Glu Cys Asn Pro Ser
65 70 75 80

Gln Val Asn Gly Ser Arg Asn Ser Pro Asp Glu Cys Ser Val Ala Lys
85 90 95

Gly Gly Lys Met Val Gly Ser Pro Asp Thr Val Gly Met Asn Tyr Gly
100 105 110

Ser Tyr Met Glu Glu Lys His Met Pro Pro Pro Asn Met Thr Thr Asn
115 120 125

Glu Arg Arg Val Ile Val Pro Ala Asp Pro Thr Leu Trp Ser Thr Asp
130 135 140

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His Val Arg Gln Trp Leu Glu Trp Ala Val Lys Glu Tyr Gly Leu Pro
 145 150 155 160

Asp Val Asn Ile Leu Leu Phe Gln Asn Ile Asp Gly Lys Glu Leu Cys
 165 170 175

Lys Met Thr Lys Asp Asp Phe Gln Arg Leu Thr Pro Ser Tyr Asn Ala
 180 185 190

Asp Ile Leu Leu Ser His Leu His Tyr Leu Arg Glu Thr Pro Leu Pro
 195 200 205

His Leu Thr Ser Asp Asp Val Asp Lys Ala Leu Gln Asn Ser Pro Arg
 210 215 220

Leu Met His Ala Arg Asn Thr Asp Leu Pro Tyr Glu Pro Pro Arg Arg
 225 230 235 240

Ser Ala Trp Thr Gly His Gly His Pro Thr Pro Gln Ser Lys Ala Ala
 245 250 255

Gln Pro Ser Pro Ser Thr Val Pro Lys Thr Glu Asp Gln Arg Pro Gln
 260 265 270

Leu Asp Pro Tyr Gln Ile Leu Gly Pro Thr Ser Ser Arg Leu Ala Asn
 275 280 285

Pro Gly Ser Gly Gln Ile Gln Leu Trp Gln Phe Leu Leu Glu Leu Leu
 290 295 300

Ser Asp Ser Ser Asn Ser Ser Cys Ile Thr Trp Glu Gly Thr Asn Gly
 305 310 315 320

Glu Phe Lys Met Thr Asp Pro Asp Glu Val Ala Arg Arg Trp Gly Glu
 325 330 335

Arg Lys Ser Lys Pro Asn Met Asn Tyr Asp Lys Leu Ser Arg Ala Leu
 340 345 350

Arg Tyr Tyr Tyr Asp Lys Asn Ile Met Thr Lys Val His Gly Lys Arg
 355 360 365

Tyr Ala Tyr Lys Phe Asp Phe His Gly Ile Ala Gln Ala Leu Gln Pro
 370 375 380

61835-3.ST25.txt

His Pro Pro Glu Ser Ser Leu Tyr Lys Tyr Pro Ser Asp Leu Pro Tyr
385 390 395 400

Met Gly Ser Tyr His Ala His Pro Gln Lys Met Asn Phe Val Ala Pro
405 410 415

His Pro Pro Ala Leu Pro Val Thr Ser Ser Ser Phe Phe Ala Ala Pro
420 425 430

Asn Pro Tyr Trp Asn Ser Pro Thr Gly Gly Ile Tyr Pro Asn Thr Arg
435 440 445

Leu Pro Thr Ser His Met Pro Ser His Leu Gly Thr Tyr Tyr
450 455 460